

THE MONIST

PROPHETIC DREAMS IN GREEK AND ROMAN ANTIQUITY.¹

I.

IF there is a province of psychic life where for ages, even among men of science, naught but crude beliefs and accredited legends have held supreme sway, it is assuredly the province of dreams. From time immemorial philosopher and peasant alike have analysed this state of consciousness, and their conceptions as a rule have differed only in their personal manner of expressing their impressions and beliefs. And in all discussions, and upon all lips that pronounce with apprehension the word *dreams*, in default of scientific experiments and precise data, which are misinterpreted even where they do exist, nothing, as a rule, is adduced but a legendary past rich in oneirological dogmas and observations which are appealed to with a confidence and certitude that are astounding.

The problem of prophetic dreams particularly has occupied our attention, and one of us, M. Vaschide, has for several years past also been studying the psychic life of dreams generally, having instituted to this end delicate and thorough researches, of which he has published hitherto but a few epitomised results.²

¹ Translated from the French MS. of MM. N. Vaschide and H. Piéron by Thomas J. McCormack.

² N. Vaschide, *Recherches expérimentales sur les rêves. De la continuité des rêves pendant le sommeil. Comptes rendus de l'Academie des Sciences, 17 Juillet, 1899.*

In the following paper we purpose giving a complete critical exposition of the views which obtained in Greek and Roman antiquity regarding the prophetic value of dreams. We have pursued this historical study throughout the history of both thinking and believing humanity, and its value is not diminished by the fact that in works treating of dreams the citations from the ancient sources are nearly always garbled or mechanically reproduce the obscure conjectures of authors who have never consulted the original texts. Having reverted to the sources themselves, we believe these pages will fill many gaps in the psychological study of dreams, and at the same time will facilitate the acquisition of a correct point of view in a domain where the imagination even of critics has distorted and falsified citations and facts that have no importance but unfortunately have passed from author to author as precious and categorical documents. The utility of our historical researches is further augmented by the fact that in our day the precise nature of the documents that have been left us on this subject by antiquity is no longer known, and that authors but too frequently base upon this supposititious literature their proofs for the establishment of hypotheses which more nearly resemble poetry than science.

Greek and Roman antiquity presents a very extensive and very rich field for studying the belief in the prophetic value of dreams. We find here a vast amount of material on the subject, as well in mythology and literature as in history and philosophy. And with mythology must not be forgotten oneiromancy, which is intimately related to it, and upon which M. Bouché Leclercq gave us some twenty years ago accurate and valuable information in his work on the history of divination.¹

II.

In the Homeric mythology, dreams are phantoms, or *εἴδωλα*, to which the gods give all kinds of forms, and which represent either divine beings or dead ancestors. Sometimes even, the gods and the dead persons themselves appear in the dreams.

¹ Bouché Leclercq. *Histoire de la divination dans l'antiquité*. Paris. Leroux. 1879. II. Chap. I., 280-329.

Hesiod makes dreams the daughters of Night and the brothers of Sleep.¹ In Euripides, dreams are the children of Gæa, the Earth, the common mother of all beings; they are the genii with black wings who travel only during the night; by them Gæa conveys to mortals the revelations which they had formerly heard from her lips at Delphi before Apollo dispossessed her of her place; and she thus avenges herself upon her despoiler.² The Pythagoreans regarded them as the sons of Night and the messengers of the Moon.³ For Ovid, they were the sons of Sleep, and inhabited the palace of their father; they were called Morpheus, Thelos, and Phantasos according as they were capable of taking all human, animal, or material forms.⁴ At all events, tradition generally agrees in making Zeus the god of dreams since Homer;⁵ but Hermes succeeded him and added to his numerous other titles that of the "guide of dreams."⁶ Bouché Leclercq assumes that this power was likewise given to Pan, Ino, Asklepios, and Heracles, which appears to be proved for the latter by the passage "*ex voto Herculi Somniali.*"⁷

All dreams are not regarded as having the same standing; there are some which are due to natural influences; the true dreams are those of the morning and of the third watch,⁸ "because food disturbs dreams."⁹ There are also several precautions indicated, such as not sleeping upon one's back or upon one's right side, for fear of compressing the viscera.¹⁰ There is even a version given by Plutarch of the origin of the Pythagorean prohibition to eat beans, because of their pernicious influence upon dreams, which

¹ Hesiod, *Theogony*, 211.

² Euripides, *Hecuba*, 70 et seq.; *Iphig. Taur.*, 1264 et seq.

³ Plutarch, *De sera numinis vindicta*, 22.

⁴ Ovid, *Metamorph.*, XI., 633 et seq.

⁵ *Iliad.*, I., 63.

⁶ *Ιερεύποροι τότε*. Athenæus, *Deipnosophistæ*, I., 16, 6.

⁷ Orelli, 1552-2405.

⁸ *Odyssey*, IV., 841.

⁹ Appuleius, *Metamorphoses*, I., 18.

¹⁰ Tertullian, *De anima*, 48.

they disturbed.¹ Other disturbing atmospheric influences were likewise feared.² As a charm against all such baneful factors, protective amulets were used; people also repaired to temples or tombs and invoked there the souls of the dead, as Bouché Leclercq has related at length.

As for the so-called temples of incubation, it may be in place to remark here that the legend according to which the magistrates of Sparta repaired to the temple of Pasiphaë at Thalamiae³ in order that the oracle might reveal to them in dreams suitable laws for their country, doubtless rested upon the following passage from Plutarch: "About that time one of the *ephori* had a surprising dream as he slept in the temple of Pasiphaë. He thought that, in the court where the *ephori* used to sit for the despatch of business, four chairs were taken away, and only one left. . . ."⁴

It is to be observed that by these methods the subjects provoked their dreams and put themselves into a state adapted to rendering them religious; so that these dreams were, so to speak, nothing but the reproductions of mythological conceptions. Still, despite the fact that prophecy by dreams received an elaborate symbolism, which reached a considerable development even in the *Odyssey*, and which it remains for us to interpret, the Greeks early acknowledged that all predictions were not realised, and hence arose the celebrated Homeric distinction between dreams: "Twain are the gates of shadowy dreams; the one is fashioned of horn and one of ivory; such as pass through the portals of sawn ivory are deceitful and bear tidings that are unfulfilled. But the dreams that come through the gates of polished horn bring a true issue whosoever of mortals beholds them."⁵

¹ *The Elder Pliny*, XVIII., 12. *Ed. Didot*, 30, 2.

² *Plutarch, Quæst. conv.*, VII., 10.

³ *Plutarch, Life of Agis*, IX.

⁴ *Plutarch, Life of Cleomenes*. Trans. by Langhorne. New York: Harpers. 1875. Vol. IV., p. 9.

⁵ . . . ήτοι μὲν δνειροι ἀμέχανοι, ἀκρεόμινοι
γίγνονται, οὐδέτε πάντα τελείεται ἀνθρώποισιν.
δουλοὶ γάρ τε πέδαι ἀμενηνῶν εἰσὶν ὄντειρων.
αἱ μὲν γάρ κεράεσσι τετεύχασαι, αἱ δὲ ἐλέφαντι.

There has been considerable discussion regarding the meaning of this passage. It has been interpreted as referring to the cornea (the horn) of the eye, which sees with certitude, and to the ivory of the teeth through which pass deceptive words. Again, the horn has been made the attribute of Morpheus, the symbol of obscure but genuine simplicity; and the ivory has been regarded as the symbol of glittering but deceitful promises. Mme. Dacier has also proposed an interpretation of this metaphor; she writes: "By the horn, which is translucent, Homer understood the atmosphere or the heavens, which are translucent; and by the ivory, which is solid and opaque, he had reference to the earth."¹ M. Élie Reclus would take the gate of ivory, which is remarkable for its whiteness, to be the symbol of day, of the reappearance of the vulgar impressions of our waking hours; and the darkish horn to be the sign of night, the time when the gods send prophetic dreams as their messengers.² But apparently the simplest interpretation is etymological; it connects ἔλέφας with ἔλεφαίρεσθαι, which means "to deceive," and κέρας with κραίνειν, which means "to realise." As to Virgil, he did nothing more than translate the verses of Homer relating to the value of dreams, which make their veracity depend upon the gate of departure which they have chosen. "There are two gates of Sleep; the one is made of horn, and affords an easy exit for genuine phantoms; the other is wrought of white, shining ivory, but through this gate the Manes send deceptive dreams."³

τῶν οἱ μέν κ' ἔλθωσι διὰ πριστοῦ ἐλέφαντος,
οἱ δὲ ἔλεφαίρονται, ἐπεὶ ἀκράντα φέροντες:
οἱ δὲ διὰ ξεστῶν κεράνων ἔλθωσι θύραζε,
οἱ δὲ ἔτυμα κραίνονται, βροτῶν δὲτέ κέντρις ιόηται.

—*Odyssey*, XIX, 559-568.

¹ Noël, *Dictionnaire de la fable*. Ed. Le Normant. 1803. Art. "Songe," p. 579.

² Élie Reclus. *Les rêves et le songe prophétique. L'humanité nouvelle*, April, 1900. Schleicher. Paris.

³ "Sunt geminæ Somni portæ: quarum altera fertur
Cornea, quæ veris facilis datur exitus umbris:
Altera, candardi perfecta nitens elephanto:
Sed falsa ad cœlum mittunt insomnia Manes."

Aeneid, Book VI., verses 894-898.

Mythology shows us the conception of the prophetic dream losing itself in the most remote epochs of the past, when legends and popular myths were formed. It shows us at the same time that the dream is required to predict the future in part at least, and on the other hand, that there was never found in it as certain a prediction as could have been desired. From this sprang all the various methods for eliminating false dreams, for guarding against error, for inducing dreams, and for determining which might be conceived as answers to the questions put.

III.

The classical distinction of *divina*, mere dreams, and *óreupoi*, or dreams having a prophetic significance, was not established until a late period. Plutarch mentions it.¹ At this period, mythology was merged with, or rather was displaced by, oneiromancy, which sought to interpret and explain the prophetic significance of dreams. Among dreams of the second category in the new terminology are to be included dreams of direct and distinct prevision and the enigmatical symbols which the soothsayers make it their business to interpret.

The symbolism of dreams varies considerably; frequently it is derived from associations which are utterly incomprehensible to-day. Generally it oscillates between two extremes,—direct analogy and direct opposition, as Tylor has shown. For example, to dream of playing on the clavichord presages the death of relatives; to dream of having a rib removed from one's side is naturally a sign that one shall mourn before long the death of one's wife. The rules are either peculiar to certain regions, or they are general in their significance and pretty much the same all over the world.²

There has never been an established criterion for distinguishing common dreams from prophetic dreams, and the latter have always been interpreted rather at random. If the predictions were

¹ Plutarch, *De placitis philosophorum*, V. 2.

² Tylor, *Primitive Culture*, Vol. I., pp. 121 et seq.; following Artemidorus, Cockayne (*Leechdoms, etc. of Early England*, Vol. III.), Seafield (*Literature, etc. of Dreams*), Halliwell (*Popular Rhymes etc.*, p. 217 et seq.).

not realised, it was the fault of the diviner, not the fault of the prophetic dream, which in itself always presages correctly; and gradually it became customary to give dreams a double interpretation, so as to exclude the possibility of error. "The certitude of dreams would be absolute and quite beyond the pale of doubt if their interpreters were not deceived in formulating their conjectures."¹

The symbolism may be also entirely conventional and adapted to the occasion. The dreamer, for example, may agree in advance that if he dreams of his right hand moving he will recover from his illness, and if he dreams of his left hand he will not recover; and since most frequently he is likely to dream of both, the issue, whatever it happens to be, will have been always foreseen. This symbolism of interpretation speedily lapses into childishness; for example, if an individual who is seventy years of age dreams that he will live fifty years more, he is permitted by the symbolism to reckon on thirteen years only, because the letter *v* which denotes 50 occupies the thirteenth place in the Greek alphabet.²

These methods are common, in fact, to all the sciences of divination. Whether the task be that of interpreting the flight of birds, or the entrails of victims, or the omens furnished by animals, or springs, or what not, the diviners always endeavor to give ambiguous formulæ, the symbolism of which can be readily turned and made applicable to events which are quite opposite in character.

A place apart is to be accorded to medical divination by dreams, which is admirably expounded in the work of Kurt Sprengel,³ which furnishes accurate details from ancient authors treating of the complicated ceremonies of the temple of *Æsculapius* and the mode of summoning the gods. Baths and fumigations preceded the consultation of the oracle⁴ and were intended to induce in some measure

¹ Ammianus Marcellinus, XXI. 102.

² Artemidorus, *Oneirocriticon*, II., 75. Ed. Hercher, Leipsic, 1864.

³ Sprengel, *Histoire pragmatique de la médecine*. French translation by Jourdan, 1815. Vol. I., Section 2, Chapter V., pp. 140-175. (*Sur l'exercice de la médecine dans les temples grecs.*)

⁴ Pausanias, L. VII. Ch. I., p. 34.

favorable physiological and psychological conditions for the suggestion of dreams. The subject then lay down either between the arms of the goddess¹ or upon the skin of a ram previously sacrificed. "These preparations having been made," says Pausanias, "they sacrifice a ram, and after having stretched its skin on the ground they go to sleep on it and wait for the oneirological revelation." The divine apparitions assume, of course, different shapes, such as that of a viper, a dove, etc.; in fact, every apparition, whatever it may be, represents a god. As to the remedies prescribed, which in the majority of cases were doubtless suggested during sleep by the attending priests, they were usually quite innocuous, being in the main gentle purgatives or foods easily digested. On the other hand, the advice sometimes given was so utterly absurd that only a madman could have thought of following it; for example, the letting of one hundred pounds of blood. (Pausanias, *Attica*, I., 34-35.)

When a patient succumbs, his death is naturally attributed to some violation of the directions given.² The custodians of the temple, *νεωκόροι*, acted as interpreters, or *ἰκέται*, and sometimes dreamed themselves in place of the patient. Then there were the *δνευροπόλοι*.³

The same is true of the oracle of Pluto and Persephone in the grotto of Charon.⁴ In this last case there was no necessity even for methods of suggesting certain dreams. The priest suggested them to himself or invented what he wished, thus making himself a member of that class of soothsayers who could not meet one another on the street without bursting out laughing.

There existed in antiquity a considerable number of works on oneirology, which demonstrates its importance. Unfortunately, the majority of these records have been lost.⁵ Yet there have

¹ Pausanias, X. 32, p. 270.

² For a list of the instructions, see Aristides, *Sacred Discourses*, Part I., 413, 491, 501, 510; Part II., 515, 520, 531.

³ Pausanias, L. II., Ch. II., p. 219; Ch. XVII., p. 279; L. X., Ch. XXXII p. 270.

⁴ Strabo, L. XIV., p. 791.

⁵ Epicharmus: Tertullianus, *De anima*, 46; Lorenz, *Leben des Epicharmus*, p. 289.—Panyasis Halicarnassius: Artemidorus, I., 2, 64; II., 35; Suidas, *Πανύσιος*.

been a few books of this order preserved, besides the valuable work of Artemidorus, and these, together with a few learned treatises by moderns, afford us pretty adequate information.¹ We shall not speak of the work of Artemidorus at length here; it is simply a manual for the use of oneirocritical diviners, a sort of *Key to Dreams*, of the same type as those published to-day. We shall merely observe that the rules for interpretation here given are but very rarely founded on experience; and that they rest almost entirely on analogies which are more or less vague, or upon popular traditions of unknown origin. These rules, furthermore, have been religiously handed down from antiquity, and our modern *Keys to Dreams* are in large measure transcripts of the rules found in the book of Artemidorus.

IV.

The data of literature and history are to be distinguished only with difficulty in this province; we shall essay, however, to adduce first the instances which lay no claim whatever to positive histor-

—Antiphon: Cicero, *De divinatione*, I., 20, 51; II., 70; Seneca, *Controv.*, 9; Tertul., *De an.*, 46; Diogenes Laertius, II., 46; Hermogenes, *De ideis*, II., 7; Lucianus, *Hist. ver.*, 2; Fulgentius, *Mytholog.*, I., 13.—Strato, *Diog. Laert.*, V., 59; Tert., *De an.*, 46.—Demetrius Phalereus: *Artem.*, II., 44.—Aristander Telmessius: Plinius, XVII., 38, 343; Plutarchus, *Alex.*, 2; Arrianus, *Anab.*, II., 18; Lucianus, *Philos.*, 21, 22; *Artem.*, I., 31; IV., 23.—Apollodorus Telmessius: *Artem.*, I., 79.—Philodorus: Tertul., *De an.*, 46.—Chrysippus: Cicero, *De div.*, II., 70; *Artem.*, IV., 65.—Antipater Tarsensis: Tert., *De an.*, 46; *Artem.*, II., 66.—Dionysius Rhodiensis: Tertul., *De an.*, 46; *Artem.*, II., 66.—Cratippus.—Alexander Myndius.—Nigidius Figulus: Io. Lyd, *De ostentatione*, 45.—Hermippus Beryensis: Tertul., *De an.*, 46.—Artemon Milesius: *Art.*, I., 2; II., 44; *Fulg. Mythol.*, I., 13; *Scholium Homeris Iliadis*, XVI., 894.—Aristarchus: *Art.*, IV., 23.—Aristides: Aristides, *Orationes*, IV., V., VI.—Horus: Dio Chrysostomus, *Orat.*, XI.—Geminus Tyrius: *Art.*, II., 49.—Nicostrates Ephesius: *Art.*, I., 2.—Phœbus Antiochenus, *Art.*, I., 2; IV., 66.—Dio Cassius: Dio Cassius, LXXII., 23.—Sera-pion Ascalonius: Tertul., *De an.*, 46.—Philo Beryensis: *Histor. graec. fr.*, Ed. Didot, III., 35.—Pappus Alexandrinus; Suidas, *Πάππος*.

¹ Astrampsychos: *Oraculorum decades*, CIII. Ed. Hercher, 1863.—Synesius: *Ἔπει ἐνίπνιον* (De insomniis).—Macrobius: *Commentarium in somn. Scipionis*, *Libri II.*.—Meibomius: *De incubatione in fanis deorum medicinae causa*.—Leopardi: *Saggio sopra gli errori popolari degli antichi*, Cap. V. *Dei sogni*. 1845.—Welcker: *Incubation, Rhetor Aristides*; *Kleine Schriften*, III., pp. 87, 114.—Büschenschutz: *Traum und Traumdeutung im Alterthum*. Berlin, 1868.

ical foundation; such as are found, for example, in the Homeric poems. Thus, Agamemnon sees in a dream the wife of Nestor who comes to speak and counsel with him. Nauticaa and Telemachus see Athena herself, and it is not the shade of Patroclus, but Patroclus himself, that appears to Achilles.¹ We may refer also to the dream of Penelope, who saw Ulysses himself in a dream on the eve of his return, and bitterly complained of being thus plagued by clear visions during her sleep.² The appearance of the gods themselves in visions was used by all the anthropomorphic religions as a ground for rejecting Christianity. Several celebrated cases furnished the foundation for this argument.

Onatus made his statue of Demeter black to accord with her phantom, which he had seen in a dream.³ Parrhasius did the same for his Heracles of Lindos.⁴ Æschylus recounts the dream of Atossa, the mother of Xerxes, which presaged the fateful reverses of her son in Greece.

Says Atossa :

" Since when my son departed with the army,
 To bring destruction on Ionia, scarcely
 One night hath been that did not bring me dreams ;
 But yesternight, with figurement most clear,
 I dreamt ; hear thou the theme. Methought I saw
 Two women richly dight, in Persian robes
 The one, the other in a Dorian dress,
 Both tall above the vulgar stature, both
 Of beauty blameless, and descended both
 From the same race. The one on Hellas dwelt,
 The other on fair Asia's continent.
 Between these twain some strife there seemed to rise ;
 Which when my son beheld, forthwith he seized them,
 And joined them to his car, and made their necks
 Submissive to the yoke. The one uptowered
 In pride of harness, as rejoiced to follow

¹ *Iliad*, II., 5. *Odyssey*, VI., 13; XV., 10. *Iliad*, XXIII., 65.

² *Odyssey*, XX., 88.

³ *Pausanias*, VIII., 42, 7.

⁴ Athenæus, *Deipnosophistæ*, XII., 62. Ed. Meineke, 3 vol., Teubner, 1858.

The kingly rein. The other kicked and plunged,
 And tossed the gear away, and broke the traces,
 The yoke in sunder snapt, and from the car
 Ran reinless. On the ground my son was thrown,
 And to his aid Darius pitying came,
 Whom when he saw, my Xerxes rent his robes."¹

Sophocles makes Chrysothemis recount the dream of Clytemnestra, who sees Egisthus menaced with death, and Chrysothemis sets forth the dream as follows :

" 'Tis whisper'd, that she saw our father come
 Again to light, and seem'd once more his wife :
 That he took in his hand the regal scepter,
 (Which once he bore, but now \mathbb{A} egisthus bears)
 And fix'd it in the earth ; when strait there sprang
 From it a thriving branch, which flourish'd wide,
 And overshadow'd all Mycenæ's land."²

Aristophanes has \mathbb{A} eschylus parody the monologue of Hecuba in Euripides, and speaks in this connexion of the hot baths which are recommended for counteracting the evil effects of portentous dreams. "Come, ye attendants, light me a lamp, and bring me dew from the rivers in pitchers, and warm some water, that I may wash away the divine dream."³

Plautus alludes to the Greek customs relative to medical suggestion by dreams in the temple of \mathbb{A} esculapius. Cappadox, a slave merchant, feeling ill after his interrogatory dreams in the temple of \mathbb{A} esculapius, explains to Palinurus, and afterward to his cook, that he had seen \mathbb{A} esculapius in his dream seated at a distance from him and unwilling to approach his presence. The cook answers that this is a sign that the god is not concerned about him and that he might better have lain in the temple of Jupiter.⁴

Literature has connected inventors with divination by dreams,

¹ \mathbb{A} eschylus, *The Persians*, verses 226 et seq. *The Lyrical Dramas of \mathbb{A} eschylus* from the Greek. Trans. into English verse by John Stuart Blackie, London, J. W. Parker, 1850.

² Sophocles, *Electra*, Eng. trans. by Theobald. London, John Bell, 1777.

³ Aristophanes, *Frogs*, verse 1340, Bohn's trans.

⁴ Plautus, *Curculio*, Act II., Scenes 1 and 2.

Æschylus having done so in the case of Prometheus,¹ Pliny in the case of Amphictyon,² and Pausanias in the case of Amphiaraus, the latter author having also spoken of a celebrated temple of incubation, namely that of Ino.³

Several authors, who, although they appeared late in the development of this species of literature, are on that account none the less interesting from the present point of view, strenuously combated the belief in the prophetic value of dreams. Theocritus, for example, treats the visions of dreams as unmitigated falsehoods. "Fatigued by the extraordinary exertions of the preceding day, his stomach empty, he dreams that he is seated on the banks of a river and is idly dangling his hook. Suddenly a fish of monstrous size seizes his bait. With line drawn taut and hands trembling with excitement, he endeavors to draw the fish to the shore without ever so much as once hoping for success. But the latter made no attempt to escape, and Osphalion drew upon the bank a fish of pure gold. Overcome with joy, he swore to abandon Neptune for Cybele, and to live the life of a king. Suddenly he awoke, terrified at the perjury he had committed, and then Olphis answered him :

"Nay, fear thee not at all.
Thou art not sworn, for thou hast not found true
The golden fish thou sawest, and the vision
Was but a lie. But if unslumbering
Thou search those waters, then perchance thy sleep
Hath augured luck. Go seek the fish of flesh,
Lest thou of hunger die and golden dreams."⁴

Ennius declares that he has little regard for interpreters and diviners, including prognosticators by dreams :

"I value at naught the augurs of the Marsian land, the haruspices of the villages, the astrologers of the market-place, the prognosticators of Isis, and the interpreters of dreams. They are but

¹ Æschylus, *Prometheus*, verse 485.

² The Elder Pliny. VII., 56, 203.

³ Pausanias, I., 34-35, and VII., 26.

⁴ Theocritus, *Idyll*, XXI., verses 63 to 67. English trans. by J. H. Hallard, London, 1894.

idlers, fools, and vagabonds, without either art or learning, and as superstitious as they are impudent; who, without knowing themselves the way, would seek to guide the footsteps of others."¹

Petronius is even more emphatic, and declares that the gods do not send the dreams, but that the dreamer creates them himself.²

History tells of many dreams that have been considered prophetic, but one may reasonably be astonished at their number being so few when one considers the great zeal with which the belief in their prophetic value has always been supported.

There is told first the dream of Hecuba, who, being *enceinte*, fancied she gave birth to a flaming torch which set the universe on fire: it was Paris, who was destined to kindle the war with Troy. Cicero attributes no higher value to this dream than that of a poetic legend, as he does likewise to the dream in which *Æneas* saw his entire future destiny.³

According to Justinus,⁴ Astyages, the grandfather of Cyrus, caused the latter to be exposed immediately after birth in an unprotected place, because he had dreamed that a vine had sprung forth from the womb of his daughter and had spread its branches over all Asia,—a dream which the diviners interpreted as a sign that he should be dethroned by a son of his daughter, as yet unmarried.

Herodotus relates that at the birth of his daughter Mandane, Astyages dreamed that she made so great a quantity of water as not only filled his capital Ecbatana, but overflowed all Asia. He

¹ Ennius cited by Cicero, *De divinatione*, I., 58.

"Non habeo denique nauci Marsum augurem,
Non vicanos aruspices, non de circo astrologos,
Non Isiacos conjectores, non interpretes somnium.
Non enim sunt ii arte divini, aut scientia,
Sed superstitionis vates, impudentesque harioli,

Qui sibi semitam non sapiunt, alteri monstrant viam."

²"Somnia quae mentes ludunt volitantibus umbris; nec delubra deum, nec sub aethere numina mittunt, sed sibi quisque facit." Petronius, *Satyricon*, CIV. Ed. Panckoucke, 1835. II., p. 88.

³Cicero, *De divinatione*, Lib. I., xxi.

⁴ Justinus, Lib. I., Chapter 4.

placed the date of the dream of the vine in the first year of the marriage of Mandane with Cambyses.¹ Justinus also relates that Cyrus had a dream which confirmed him in his design to dethrone Astyages, but he does not report it in detail.²

Xenophon says not a word concerning these dreams in his *Cyropaedia*, but on the other hand he declares that shortly before his death Cyrus saw a majestic personage which said to him: "Prepare thyself, Cyrus, for thou shalt soon depart for the abode of the gods,"³ which is in flat contradiction with the story of Herodotus,⁴ according to which he saw Darius, the eldest son of Hytaspes, with two wings on his shoulders,—the one casting its shadow over Asia and the other over Europe; from which he inferred that the son of Hytaspes was plotting against him and would take the succession,—a prophecy which was fulfilled.

Xenophon relates two dreams to which he attributes prophetic value and which took place during the famous retreat of the ten thousand. In the first, which he dreamed at the moment the Greeks found themselves abandoned in Asia, "he fancied he saw in the midst of great thunder a lightning bolt fall upon his paternal house, which was set on fire."⁵ He did not know whether the bolt of Jupiter was a favorable sign or whether the blazing fire around him presaged that he would be imprisoned in Asia. In any event, the dream having awakened him, he called together his commanders and proposed to them to set out at once on their journey to the coast. Thus began the famous retreat of the ten thousand. In the second, "he dreamed that his feet were bound with fetters, which, having burst of their own accord, left him free to walk about as much as he wished."⁶ This dream, which he recounted to his commanders as a fortunate presage, preceded the difficult passage of the river Centrites, a feat which the Greeks accomplished successfully.

Lucian has spoken of the first of these dreams, which he con-

¹ Herodotus, Book I., 107.

² Justinus, Book I., Chapters 4 and 6.

³ Xenophon, Book VIII., Chapter 7.

⁴ Herodotus, Book I., 209.

⁵ *Anabasis*, Book III., Chapter 1.

⁶ *Anabasis*, Book IV., Chapter 3.

siders as nothing but a piece of artful strategy on the part of Xenophon, and compares it to one of his own which he has just related and which he had employed merely as a rhetorical device. He says:

"The vision of Xenophon was not that of a charlatan, and his narration was not an idle one. He was at war, his situation was critical, his enemies surrounded him on all sides, and his story was attended with the happiest results. In like manner, I have recounted my dream merely for the purpose of guiding young men toward the good and toward the love of science."¹

Herodotus recounts a series of dreams which preceded the expedition of Xerxes into Greece.

The king, who was determined upon this expedition, was earnestly dissuaded from the enterprise by his uncle, Artabanus. He was at first greatly put out by this interference, but gradually coming around to his uncle's point of view he was on the point of revoking his decision when he fell asleep. There then came to him in a dream, so the Persian accounts run, a tall and handsome man who upbraided him for so lightly abandoning his design. But on the following morning Xerxes, paying no attention to the dream, announced that after mature reflexion he had decided to follow the advice of his uncle, Artabanus. The following night he had another dream in which the same vision threatened him with the total demolition of his power if he persisted in his new resolution. Dismayed, Xerxes sent for Artabanus, explained to him the situation, and caused him to pass the night on his couch, clad in Xerxes's, own royal vestments, in order that the dream might come to Artabanus also; which would be a proof of its divine origin. And in fact, Artabanus did see the vision, who threatened to burn out his eyes with red hot irons if he persisted in dissuading the king from his original purpose. Artabanus thereupon also set to work actively promoting the expedition. Finally, after his resolution had been taken, Xerxes had a third dream. He imagined himself crowned with the branches of an olive-tree which covered the entire earth; afterwards, the crown which rested on his head van-

¹Lucian, *Dreams*, 17. French translation by Talbot, Paris, Hachette, 1847, T. I., p. 6.

placed the date of the dream of the vine in the first year of the marriage of Mandane with Cambyses.¹ Justinus also relates that Cyrus had a dream which confirmed him in his design to dethrone Astyages, but he does not report it in detail.²

Xenophon says not a word concerning these dreams in his *Cyropaedia*, but on the other hand he declares that shortly before his death Cyrus saw a majestic personage which said to him: "Prepare thyself, Cyrus, for thou shalt soon depart for the abode of the gods,"³ which is in flat contradiction with the story of Herodotus,⁴ according to which he saw Darius, the eldest son of Hytas-pes, with two wings on his shoulders,—the one casting its shadow over Asia and the other over Europe; from which he inferred that the son of Hytas-pes was plotting against him and would take the succession,—a prophecy which was fulfilled.

Xenophon relates two dreams to which he attributes prophetic value and which took place during the famous retreat of the ten thousand. In the first, which he dreamed at the moment the Greeks found themselves abandoned in Asia, "he fancied he saw in the midst of great thunder a lightning bolt fall upon his paternal house, which was set on fire."⁵ He did not know whether the bolt of Jupiter was a favorable sign or whether the blazing fire around him presaged that he would be imprisoned in Asia. In any event, the dream having awakened him, he called together his commanders and proposed to them to set out at once on their journey to the coast. Thus began the famous retreat of the ten thousand. In the second, "he dreamed that his feet were bound with fetters, which, having burst of their own accord, left him free to walk about as much as he wished."⁶ This dream, which he recounted to his commanders as a fortunate presage, preceded the difficult passage of the river Centrites, a feat which the Greeks accomplished successfully.

Lucian has spoken of the first of these dreams, which he con-

¹ Herodotus, Book I., 107.

² Justinus, Book I., Chapters 4 and 6.

³ Xenophon, Book VIII., Chapter 7.

⁴ Herodotus, Book I., 209.

⁵ *Anabasis*, Book III., Chapter 1.

⁶ *Anabasis*, Book IV., Chapter 3.

siders as nothing but a piece of artful strategy on the part of Xenophon, and compares it to one of his own which he has just related and which he had employed merely as a rhetorical device. He says:

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¹Lucian, *Dreams*, 17. French translation by Talbot, Paris, Hachette, 1847. T. I., p. 6.

ished. The magi presaged that he would have for his subjects all the men of the earth.¹

The genesis of these dreams is not difficult to establish. They are sufficiently explained by the desires and ambitions of Xerxes and the fears of Artabanus. In any event, the prophecy was an unfortunate one, since it led Xerxes to the historical disaster of Salamis. It might be said that the last vision could be interpreted as presaging this event, and that the magi wished to flatter Xerxes by their construction of it; but it is quite probable that the dream, if it was not invented after the fact, was at least so constructed as to be susceptible of an interpretation conforming to the real outcome.

Darius, as Quintus Curtius tells us, on the eve of his encounter with Alexander, had a dream which his diviners interpreted; but our author hesitates in giving his opinion as to the value to be attributed to the interpretation. "Greatly disturbed by the cares which were weighing upon him, the image of the approaching events pursued him even in his sleep; whether it be that his solicitude or some divining faculty of his mind summoned them before his vision."² In any event, he dreamed that the camp of Alexander was lighted up by flames, and that Alexander wore an ancient habit which he himself had once worn, and that having been conducted on horseback into Babylon, he suddenly disappeared from sight. The interpreters predicted either that Darius would surprise the camp of the king, who would take flight in a Persian garment, or that Alexander would achieve a signal triumph and become king in place of Darius. Darius accepted the first interpretation, which seemed to suit better with his wishes, and, marching against Alexander, suffered a disastrous defeat. The dream did not, and could not, presage falsely, since one of the interpretations was bound to come true. Darius had simply made an unfortunate choice.

According to Quintus Curtius, Alexander himself had a dream

¹ Herodotus, Book VII., Chapters 12-20.

² "Anxium de instantibus curis, agitabant etiam per somnum species imminentium rerum; sive illas aegritudo, sive divinatio animi praesagientis accersit."—Quintus Curtius, Lib. III., 3.

revealing the divine secrets of medicine. Resting in the chamber of his general, Ptolemæus, who had been seriously wounded and whom he loved very much, he fell into a deep sleep in which he saw "a dragon bringing to him in its jaw an herb which it offered as a remedy for Ptolemæus's sickness, assuring him that he would be able to recognise it. The herb was found and the wound was effectually healed."¹

At Rome, Tarquin had a dream, which was interpreted by the soothsayers as presaging the downfall of the kingly rule. Cicero cites it on the authority of Brutus Attii.²

Let us also cite the dream of Calpurnia, who saw her husband, Cæsar, lying murdered in her arms on the night preceding his assassination.³ Livy gives a different version of the dream.⁴ According to him, the gable of Cæsar's house fell in the dream of Calpurnia and aroused her fear. The story doubtless underwent many modifications and Alexander ab Alexandro relates that Cæsar himself is said to have "dreamed on the eve of his death that he was seated on the throne of Jupiter and had been hurled down from Heaven."⁵

There is still to be cited the phantom that appeared to Brutus at Philippi, where Brutus perished,⁶ and also the vision of Augustus at Philippi, where the latter dreamed that a friend had counseled him to abandon his tent, which was subsequently captured by the enemy. Augustus did as he was advised, and thus saved his life.⁷

Cicero gives a long list of prophetic dreams (*De divinatione*, I., 20-29):

That of the mother of Dionysius, the tyrant of Syracuse, who dreamed that she had given birth to a satyr.

The dream of Hecuba already cited, together with that of Tarquin.

That of the mother of Phalaris, the cruel tyrant of Agrigentum.

¹ Quintus Curtius, IX., 33.

² Cicero, *De divinatione*, I., 22.

³ Plutarch, *Life of Cæsar*, LXVIII.

⁴ Titus Livius, L. CXVI. Fragment. Ed. Didot, T. II., p. 902.

⁵ *Dies geniales*, L. III., Chapter 26. ⁶ Plutarch, *Life of Cæsar*, LXIV.

⁷ Suetonius, *Augustus*, XCI.

tum, who, according to Heraclides Ponticus, dreamed of blood at his birth.

That of Cyrus, who dreamed of three suns, which his sooth-sayers felicitously induced him to interpret as meaning that he would reign three times ten years.

That of Hannibal, who in a dream received a visit from Juno, who forbade him to remove a column of gold from her temple; and who, in another, dreamed of a devastating monster, which, according to Cælius, was his own impersonation.

That of Hamilcar who, at the siege of Syracuse, dreamed that he would dine in the city on the following day, which he did, but as a prisoner, having been captured in a sally by the besieged.

Socrates saw three days before his death the vision of a beautiful woman who told him that "on the third day he should reach fertile Phthia,"¹ and he then announced the day of his death to his friends.

Eudemus of Cyprus, according to Aristotle, dreamed of his recovery while sick.

Twice in succession Sophocles saw in a dream Hercules, who charged a thief with having abstracted from his temple a vessel of gold; whereupon Sophocles caused the arrest of the thief, who confessed his crime.

Curious is the dream of the Roman peasant, which appeared so portentous to the Senate of Rome that it ordered the celebration of certain interrupted public games to be repeated. "This is a fact," says Cicero, "upon which the two Fabii, the two Gellii, and more recently still the historian Cælius, are all of accord." During the celebration of the first great votive games, which took place in the time of the Latin war, the city was suddenly called to arms, and later the games were ordered to be repeated. Before they were begun, and just as the spectators had taken their seats, a slave carrying a furca, or fork-shaped criminal yoke, and writhing under the blows of a whip, was driven across the arena. Some time afterwards, a Roman peasant had a dream, in which there appeared a

¹ The verse is from Homer, *Iliad*, IX., 363 (Ed. Dindorf) and reads: ἡμέρα καὶ τριτάρη Θείην ἐρίβωλον ικούμην. Cited in Plato, *Crito*, II.

person, who after declaring that the leader of the dance in the games had not pleased him, ordered him to go and make announcement of this fact to the Senate. The peasant, not daring to do so, had the same dream again, accompanied with the same injunction, this time with threats. Fear still holding him back, his son died. He then received the same command for the third time, and having finally been stricken with paralysis, he made known his dream to his friends who, placing him upon a litter, conveyed him into the presence of the Senate, whence, after having related his dream, he walked home without help. The Senate, being fully convinced of the truth of this dream, ordered a second celebration of the games.

Livy tells the same story, in almost precisely the same language, but in somewhat greater detail and with a slight difference as to the nature of the games.¹

The second of the Gracchi, according to Cælius, was forewarned by his brother that he would die the same death as the latter.

Simonides, according to his own testimony, was induced by the apparition of an unknown man whose abandoned body he had buried, to relinquish his intention to embark upon a certain vessel which was afterward wrecked. The poet, who had contemplated making a sea voyage, saw in a dream the person whom he had interred, beseeching him to abandon his project, informing him that if he persisted in embarking he would suffer shipwreck. Simonides altered his plans, and the vessel upon which he had intended to sail was lost.

Cicero, finally, narrates the dream of the two Arcadians, which we shall give later.

* * *

Valerius Maximus also gives a list of dreams, many of which have already been mentioned, and which are designed to establish the prophetic value of dreams.² We shall relate a few of them.

¹ Livy, Book II. 36. Also cited by Valerius Maximus, I. 7. IV., and by Lactantius, *Divine Institutes*, II. 8.

² Valerius Maximus, *De somniis*, I., Chapter 7.

The first is of King Crœsus. "This king had two sons; one of these, who excelled the other greatly in physical strength and beauty, and who was the heir to the throne, appeared to Crœsus in a dream, transfixed by the point of a sword. In order to avoid the fulfilment of the dream, he enjoined his son who was devoted to warlike pursuits not to leave his palace. Now, it happened that a huge boar was ravaging the country of the Lydians and had killed numbers of the peasantry. Some representatives of the latter repaired to the king, imploring succor in their distress, and the king suffered his son to go forth in quest of the boar, saying that the animal carried no weapon of iron and his son did not fear his tusks. But what came to pass? A javelin hurled at the beast by one of the party struck the prince, and he died from the wound, thus fulfilling the paternal dream."¹

Next comes the dream of Caius Gracchus: "As he slept he dreamed that he saw his brother Tiberius, who told him that he would die in the same manner as he, Tiberius, had died. Caius was heard to tell this story several times even before he was elected to the office of tribune of the people, in which he met a fate similar to that of his elder brother."

The dream of the two Arcadians is the most celebrated of all. "Two friends of Arcadia, while journeying together, came to the city of Megara. One of them stayed with friends, and the other took lodgings in an inn. The first dreamed that the other, having been betrayed by his host, was beseeching him to come to his assistance, saying that if he would make haste it would be still possible to save him from the impending danger. After this vision, he arose and dressed himself, with the intention of proceeding to the inn in question. Then, in an ill-omened moment he repented of having been so unduly influenced by a dream, and came to the conclusion that it would be a futile undertaking to make his way in the dead of night to the place. He returned to his bed, and began to dream anew. He dreamed that his friend, who had in the meantime been put to death by the inn-keeper, was beseeching

¹ Also told by Herodotus, I., 53.

him now, not to save his life, which had been lost through his indifference, but to avenge his death, declaring that his murdered body was at that very moment being carried to the gates of the city in a cart laden with manure. The wretched man, thus besought by his friend, hurried to the gates of the city, and stopping the cart, which he had seen in his dream, he seized the murderer and led him away to the courts of justice, where the wretch was condemned to death."

The dream of Arterius Rufus is remarkable for its precision, which as a rule is rare: "Even a less interval of time separated this dream from the events which it presaged. Sojourning at Syracuse during the gladiatorial exhibitions, he saw in a dream a retiarius, or net-fighter, thrusting a sword into his bosom. On the following day, while witnessing the combat, he narrated his dream to the spectators seated beside him. Soon after, a retiarius and a swordsman entered the arena on the same side on which the Roman knight was seated. At this sight Rufus cried out: 'There is the retiarius by whom I dreamed I was assassinated'; and he prepared immediately to withdraw. But his neighbours succeeded in allaying his fears, and became thus indirectly responsible for the death of the unfortunate man. For the retiarius, having forced the swordsman to the wall, entangled him in his net, and in endeavoring to strike him after he had fallen, pierced with his weapon the bosom of Arterius, who died from the wound."

On the other hand, the dream which is narrated of Alcibiades is very vague: "Alcibiades also, during his sleep, had a remarkably distinct premonition of the fate which awaited him. For the mantle of his mistress, with which he had covered himself when going to sleep, was made to do service as a shroud for his uninterred body."

The following is a list of the dreams cited by Valerius Maximus:

I. De Somniis Romanorum :

(1) Artorii medici de Augusto; (2) Calpurniae de Caesare; (3) P. Decii, T. Manlii coss; (4) Ti. Attinii cujusdam; (5) M. Ciceronis exsulis; (6) C. Sempronii Gracchi; (7) Cassii Parmensis; (8) Alterii Rifi equitis romani.

II. *De Somniis externorum* :

(1) Hannibalis Poeni; (2) Alexandri magni regis; (3) Simonidis poetae; (4) Croesi Lydorum regis; (5) Cyri Persarum regis; (6) Himeræ mulieris de Dionysio; (7) Matris Dionysii tyranni; (8) Hamilcaris Poeni; (9) Alcibiadis Atheniensis; (10) Arcadii cuiusdam.¹

Plutarch, who is the chronicler of legends *par excellence*, narrates many that have reference to prophetic dreams. The majority of them have already been cited. The remainder are traditions that have been orally preserved for a great length of time. Many of them possessed no prophetic value except that which superstition generously accorded to them. Take, for example, the dreams which troubled Pausanias because of his remorse for the murder of Cleonice.²

"It is related, that when Pausanias was at Byzantium, he cast his eyes upon a young virgin named Cleonice, of a noble family there, and insisted on having her for a mistress. The parents, intimidated by his power, were under the hard necessity of giving up their daughter. The young woman begged that the light might be taken out of his apartment, that she might go to his bed in secrecy and silence. When she entered he was asleep, and she unfortunately stumbled upon the candlestick, and threw it down. The noise waked him suddenly, and he, in his confusion, thinking it was an enemy coming to assassinate him, unsheathed a dagger that lay by him, and plunged it into the virgin's heart. After this he could never rest. Her image appeared to him every night, and, with a menacing tone, repeated this heroic verse,—

Go to the fate which pride and lust prepare!

Having been besieged in Byzantium, he found means to escape thence; and as he was still haunted by the spectre, he is said to have applied to a temple at Heraclea, where the *manes* of the dead were consulted. There he invoked the spirit of Cleonice, and entreated her pardon. She appeared, and told him,—'He would soon be delivered from all his troubles, after his return to Sparta;' in which, it seems, his death was enigmatically foretold."

It was almost a moral certainty that Pausanias would have been delivered from all his troubles after his return from Sparta, even if he had not died.

As for the dreams of Lucullus recorded in Plutarch, they possess nothing characteristic except lack of precision. The following is one of them: "On the same day, the goddess Proserpine ap-

¹ Valerius Maximus, *De somniis*, T. I., Cap. VII.

² Plutarch, *Life of Cimon*. Trans. by Langhorne. Vol. II., p. 401.

peared in a dream to Aristagoras the public secretary, and said: 'Go and tell your fellow-citizens to take courage, for I shall bring the African piper against the trumpets of Pontus.'" On the following day, the besieged Cyzicenians saw the machines which had been erected against their walls broken to pieces by a violent wind from the south, which popular superstition naturally interpreted as the African piper,¹

At Sinope, Lucullus had a dream in which a person came to him and said: "Go forward, Lucullus, for Autolycus is coming to meet you." The significance of the dream was revealed to him the same day when in pursuing the Cilicians to their ships he saw a statue lying on the shore which they had not been able to get on board. It was the statue of Autolycus himself, the founder of Sinope, and out of regard for the vision Lucullus restored their effects to the old inhabitants of the city and subsequently looked after their welfare.

On another occasion, he is said to have dreamed that Minerva appeared to him in a dream and revealed the presence of a large fleet of the enemy approaching. Her words were:

"Dost thou then sleep, great monarch of the woods,
When fawns are rustling near thee?"

It will be evident that there is not much to be gained from a study of this class of dreams.²

Finally, we find a number of prophetic dreams mentioned in Appian: *Didonis*,³ *Cæsaris de colonia carthaginienti*,⁴ *Matris Seleuci*,⁵ *Antigoni*,⁶ *Mithridates de Latonae luco*,⁷ *Luculli*,⁸ *Syllae de*

¹ Plutarch, *Life of Lucullus*. Langhorne, Vol. II., p. 427.

² The following is a list of Plutarch's dreams, the references being to Didot: *Agesilai Aulide*, *Vite*, T. II., p. 714, l. 12; *Alcibiadis ante necem*, I., p. 234, l. 52; *Alexandri magni de Clito*, II., 827, 25; *Antigoni*, II., 1063, 6; *Antonii*, II., 1100, 50; *Arimnesti*, I., 388, 46; *M. Artorii*, II., 1196, 5; *Cæsaris ad Ariminum*, II., 863, 26; *Calpurnia*, II., 880, 23; *Ciceronis de Octavio*, II., 1053, 54; *Cimonis*, I., 585, 40; *Cinnae*, II., 883, 26 (1184, 15); *Cyziceni scribæ*, I., 594, 45; *Darii regis*, II., 804, 40; *Demetrii*, II., 1077, 1.

³ Appian. *De rebus punicis* 1.

⁴ Appian. *De rebus punicis* 136.

⁵ Appian. *De rebus syriacis* 56.

⁶ Appian. *De bello mythridatico* 9.

⁷ Appian. *De bello mythridatico* 27.

⁸ Appian. *De bello mythridatico* 83.

instante morte,¹ Pompei de templo veneri victri dicando,² Calpurniae de morte Cæsaris,³ Octaviani de cavendis castris,⁴ Elyssis.⁵

Later historians also relate dreams of this character. Thus, Ælius Lampridius says of the dream of Alexander Severus : "His mother dreamed on the eve of her marriage that she gave birth to a purple-colored dragon. The same night, his father dreamed that he had been carried aloft to Heaven upon the wings of the goddess of Victory, which occupied a place in the Roman senate-chamber."⁶

Zosimus cites one of the emperor Julian : "Whilst he was revolving these thoughts in his mind and was loath to begin a civil war, the gods revealed to him in a dream what should happen by showing him at Vienna, where he then chanced to be, the sun, which pointed to the other stars and recited to him the following verses :

When beneath Aquarius, Jupiter shall stand,
When below the Virgin old Saturn shall shine,
Whose looks morose his surly temper brand,
Then shall the tomb open with speed for Constantine.'

"Giving no thought to this dream, he continued, as he was wont, to administer the public affairs."⁷

According to Herodianus, Antoninus Caracalla "repaired to Pergamus to try the remedies of Æsculapius, and passed a night in his temple as was the custom."⁸ But the historian omits to say whether he recovered.

Finally, there is a legend connected with the founding of the city of Marseilles, containing a revelatory dream of a divine character :

"After the settlement of the coasts of Gaul by mariners from Phœcœa, messengers were sent back to their native city. Before returning again to Gaul, they

¹ Appian. *De bellis civil.* I., 105.

² Appian. *De bello mythridatico* II., 69.

³ Appian. *De bello mythridatico* II., 115.

⁴ Appian. *De bello mythridatico* IV., 110.

⁵ Appian. *De bello mythridatico* V., 116.

⁶ Ælius Lampridius, *Alexandri Severi vita.* Ed. Nisard, 1846, p. 451.

⁷ Zosimus, Ed. Glisard, p. 791.

⁸ Herodianus, Lib. IV.

rested in Ephesus, where a woman announced to them that Diana, the great goddess of the Ephesians, had directed her in a dream to transport one of her statues to Gaul and to introduce her worship there,—a command which was carried out at the founding of the city of Massilia."¹

It happened that subsequently Minerva, who also had an altar in the new city, gave protection to Massilia by threatening in a dream the king Catumand, who was besieging it at the head of an army. She appeared to him in terrible aspect and said in an angry voice: "I am a goddess, and I will protect this city." The frightened king concluded peace. In the city he afterwards recognised the statue of the goddess who had appeared to him in his dream, and he placed about her neck a collar of gold.²

In all these dreams, a very considerable portion is to be ascribed to legends made out of whole cloth, or at least greatly embellished, and a convincing proof of this is discoverable in the fact that with different authors, widely different versions of the same event are found.

The number of such dreams is quite limited, and their value is not great. Nevertheless, there is among many of them a certain similarity, this being especially so of the dreams of pregnant women respecting the destinies of their children; and where is there a mother who has not dreamed on this subject? Take for example the dream of the mother of Octavius, who, according to Alexander ab Alexandro, dreaméd, while *enceinte*, that her intestines had fallen out and rolled over the entire world.³

Then, there are the dreams of victory or of death, which but re-echo the intensely real feelings of waking life, as did the dream of Gracchus, for example. Finally, in some cases, the dream itself has been a potent factor in determining the event it predicted.

There are also instances of dreams that are clearly prophetic, yet even here the agreement with reality does not appear extraordinary, when it is remembered that we have in this class abso-

¹ Strabo, I., 4, p. 179. Cf. A. Thierry, *Histoire des Gaulois*, 1862, T. I., pp. 138-139.

² Justinus, I., XLIII. c. 5. Cf. A. Thierry, *Histoire des Gaulois*, 1862. T. I., pp. 528-529.

³ Alexander ab Alexandro, Book III.

lutely all the cases of coincidence which nations who believed in the prophetic value of dreams have been able to produce. And as for the literature of Greek and Roman antiquity on this subject, which at a distance seems so extensive, it is found on close scrutiny to be extremely meagre. What it appears to give in the sum-total is the impression of a unanimous and deep-seated confidence in the ancient heart respecting the prophetic value of dreams, from the thrall of which few men were able to escape. And it is not only the literature of antiquity with its fictions that exhibits this symptom; it is also, and notably so, the history of antiquity. Indeed, the history of the ancients itself is largely literature and fiction, and Herodotus does not differ greatly from Homer.

V.

If we examine the opinions entertained by the philosophers and physicians of antiquity upon this subject, it will be found that in general they appear to corroborate the popular beliefs.

Democritus, despite his system, was a believer in the prophetic value of dreams; according to him, it is possible for the images which haunt us in our sleep to reflect the states of the soul and the intentions of other people and so to reveal the future. We have here a species of telepathic revelation of the future. He makes one reservation to the effect that possible changes in the images of our dreams may prevent our assigning to them an absolute value.¹

We do not know the views of Pythagoras. He thoroughly studied divination by dreams among the Egyptians, the Arabs, the Chaldaeans, and the Hebrews; he took great interest in the magic of Egypt, where he spent twenty-two years, but it was not for the sake of their superstitions.² His disciples relate that their master sometimes conversed in his sleep with dead relatives, but he personally attributed no great significance to this fact.³

¹ Plutarch, *Quæst. conviv.* VIII., 10, 2; *Placita philos.* V., 2; Aristotle, *De div.* 2, 464a; Cicero, *De div.* I., 3, 5; Zeller, *Philosophie des Grecs*, French translation by Boutoux, Vol. II., p. 354.

² καὶ οὐχὶ δειπναμονίας ἔνεκα.—Iamblichus, *Life of Pythagoras*, III., 14, IV., 18, 19.

³ Iamblichus, *Life of Pythagoras*, 139, 148.

Diogenes rises above the common superstitions, and declares that although he entertained a high opinion of man when he contemplated the great thinkers, yet when he saw the interpreters of dreams, the soothsayers and their credulous patrons, he looked upon man as the most stupid of creatures.¹

But, the following is the view of Hippocrates, which his disciple, Galen, has repeated word for word:²

"Among dreams, those which are of divine origin and presage either to cities or individuals fortunate or unfortunate events not incurred by the fault of the parties concerned, have their interpreters who are able to assign to them an exact meaning. There are also dreams in which the soul announces corporeal affections, be it excess of fulness or the evacuation of congenital things, or be it a change toward unaccustomed things, and these are explained by the same interpreters, who are sometimes deceived and who sometimes predict correctly, without knowing why they sometimes succeed and why they sometimes fail."

This is the work of a physician. Hippocrates also appears to have possessed a rather fantastic sort of symptomatology. Thus, to see the moon, the sun, or the stars, was a sign of health; but if a star disappeared, particularly during a rain, this circumstance called for accurate and rigorous treatment, which varied according to whether the star that appeared was the sun, or the moon, etc.

The great philosophers held the same views with the great physicians. Plato remarks, in the ninth book of *The Republic*, that the dreams of virtuous men differed from the dreams of profligate men, and that accordingly dreams partook of the character of the individual. He was particularly firm in his faith in the prophetic value of dreams. The following is a specimen from the *Timaeus*:³

"And herein is a proof that God has given the art of divination not to the wisdom, but to the foolishness, of man. No man, when in his wits, attains prophetic

¹ Diogenes Laertius, VI. 2. 4.

² Όκόσα μὲν οὖν τῶν ἐνυπνίων θεῖά ἔστι, καὶ προσημαίνει τιὰ συμβοσάμενα, ἢ πόλεσιν, ἢ τῷ ιδίῳτε λαῷ, ἢ κακά ἢ ἀγαθά μὴ δι' αὐτῶν ἀμαρτίην, εἰσὶν οἱ κρίνονται περὶ τῶν τοιούτων ακριβῆ τέχνην ἔχοντες· Όκόσα δέ ἡ ψυχὴ τοὺς σώματος παθήματα προσημαίνει πληρομονῆς ἡ κενόνως ὑπερβολὴ τῶν ἔνυπνίων, ἢ μεταβολὴ τῶν ἀρθέων, κρίνονται μὲν καὶ ταῦτα, καὶ τὰ μὲν τρυχάνονται, τὰ δὲ ἀμαρτάνονται, καὶ οὐδέπερ τούτων γνώσκονται, διότι γένεται, οἵθ' οἵ τι ἐπιτείχωσιν, οἵθ' οἵ τι ἀμάρτωσι.—Hippocrates, *On Dreams*. Complete works, Ed. Littré. Baillière, Paris, 1881. Vol. VI., pp. 640-663.

³ *Dialogues of Plato*, Jowett's translation, Vol. III., p. 493.

truth and inspiration; but when he receives the inspired word, either his intelligence is enthralled in sleep, or he is demented by some distemper or possession."

In the preceding views, Plato followed the teachings of his master Socrates, as he has expounded them in the *Republic* and as they are confirmed by Xenophon in the *Cyropaedia*. The following is the passage from Plato:¹

"When a man's pulse is healthy and temperate, and when before going to sleep he has awakened his rational powers, and fed them on noble thoughts and inquiries, collecting himself in meditation; after having first indulged his appetites neither too much nor too little, but just enough to lay them to sleep, and prevent them and their enjoyments and pains from interfering with the higher principle—which he leaves in the solitude of pure abstraction, free to contemplate and aspire to the knowledge of the unknown, whether in past, present, or future; when again he has allayed the passionate element, if he has a quarrel against any one,—I say, when, after pacifying the two irrational principles, he rouses up the third, which is reason, before he takes his rest, then, as you know, he attains truth most nearly, and is least likely to be the sport of fantastic and lawless visions."

The passage from Xenophon² reads as follows:

"You have remarked that nothing more resembles death than sleep, and it is in sleep that the soul of man is most divine. It even has dim presentiments of what takes place in the future, for in this state it possesses in fullest measure its liberty."

Like Plato, Aristotle also refers to the dreams of good people, which relate only to excellent things, being the echo of the thoughts which have occupied their minds before going to sleep. He says:

"The best Greeks have the best dreams, for the reason that their thoughts are occupied exclusively with excellent things during their waking hours. Those who have less excellent thoughts or less sound bodies have less excellent and less sound dreams; for the condition of the body contributes greatly to the images which appear to us in our dreams."³

Aristotle has been ranked among the partisans of prophetic dreams as well as among their adversaries,⁴ and in point of fact his

¹ Plato, *Republic*, Jowett's translation, Vol. III., pp. 280-281.

² Xenophon, *Cyropaedia*, VIII., 7, 319.

³ Aristotle, *Problems*, French translation of Barthélemy-Saint-Hilaire, Paris, Hachette, 1891, Section XXX., paragraph 14, p. 345.

⁴ Gassendi, *Phys. Lect.*, III., p. 423.

texts are nothing less than ambiguous on the subject. Aristotle admits that dreams may predetermine events by the knowledge which they furnish of them, also that divination may be successfully practised, though without seeing anything preternatural in these possibilities. "It is not inconsistent with reason," he says, "that the images which appear in dreams should be the cause of certain definite acts. Just as those who ought to do, who are wont to do, or who have frequently done, some certain thing, think of it day and night in dream-fashion, as it were, (for the occupations of the day prepare the way in a measure for such a movement of the thought), so, conversely, the majority of the movements which are executed in sleep become the determining principle of our actions during the day; for our train of thought has been checked at this point and has by the representations of the night prepared the way for the execution of the act. It is thus that certain dreams are causes or signs. But in the majority of cases the coincidences are fortuitous only, this being especially so in the case of those extraordinary dreams which exceed the bounds of human credibility; and all those which thus take place in us have for their subject-matter some such object as a naval battle, for example, or some other event which is not in any wise connected with our life."¹

Let us not pass over this first indication of a higher and more accurate point of view, without observing that on this subject Aristotle differed completely from his master, Plato, and was the inaugurator of an entirely new idea.

We revert to the common belief with Herophilus, a physician of Ptolemy, who distinguished three species of dreams: the θεό-

¹ Άλλὰ μὴν καὶ ἐνιά γε τῶν καθ' ὑπνον φαντασμάτων αἴτια, είναι τῶν οικείων ἐκάστῳ πράξεων οὐκ ἀλογον· ὅσπερ γὰρ μέλλοντες πράττειν, καὶ ἐν ταῖς πράξεσιν ὄντες, ἡ πεπραχότες πόλλακις εἰδηνούριμα τούτους σύνεσμεν καὶ πράττομεν (αἴτιον δ' ὅτι, πρωδοποιημένη τυγχάνει ἡ κίνησις ἀπὸ τῶν μεθ' ἡμέραν ἀρχῶν) οὕτω πάλιν ἀναγκαῖον καὶ τὰς καθ' ὑπνον κινήσεις πολλάκις ἀρχὴν είναι τῶν μεθ' ἡμέραν πράξεων διὰ τὸ πρωδοποιησθαι πάλιν καὶ τούτων τὴν διάνοιαν ἐν τοῖς φαντάζουσι τοῖς νυκτερινοῖς. Οὕτω μὲν οὖν ἐνδέχεται τῶν ἐνυπνίων ἐνια καὶ σημεία καὶ αἴτια είναι τὰ δὲ πολλὰ συμπλέαστοι οὐκε, μάλιστα δὲ τὰ θ' ὑπερβατικά πάντα, καὶ ὃν μὴν ἐν αἴτοις ἡ ἀρχὴ, ἀλλὰ περὶ ναυμαχίας, καὶ τῶν πόρρω συμβανόντων ἐστιν.—Aristotle, *On Divination by Dreams*; Waddington, *La psychologie d'Aristote*, Paris, Joubert, 1848, chapter xiii., page 607.

πνευστοί, or those sent by God, the φυσικοί, or those created by the soul, and the συγκραμματικοί, or mixed species.¹

The philosopher Priscian, who flourished in the time of Justinian, also essayed an explanation. He found that the soul, being free during sleep from the bonds of the body, became stronger, more lucid, and more apt to entertain the divine visions which permitted it to prophesy and to predict the future. He propounds the following questions :

" If our soul is able to predict the future, why is it that it acquires this power over future events only in the periods when it is unconscious? What is the reason that certain people are able to make prophecies? Why is it that the knowledge which the soul has of future events during its waking hours does not possess the same certainty? And why is prophecy impossible in these hours? "

His answer is as follows :

" The mind, when freed from the body during dreams, may be judged by God worthy of the visions which he sends it,—a fact which was overlooked by Aristotle and by all his followers. The soul receives from God faculties which it possesses to the full. Thus, the soul, being purified and without corporeal dreams, receives intellectual revelations, and, by a sort of divine operation, as it were, predicts the future."²

Finally, according to Philo the Jew, there are, as Chaignet remarks, three sorts of dreams: The passive, or those invoked by God; the active, or spontaneous, where the soul is merged with the mind of the All and can predict the future; and the mixed dreams, where the soul is abandoned to a delirious enthusiasm, and prophesies in that state.³ Philo says :

¹ Plutarch, *Placita phil.*, V., 2.

² " Si enim notitia animæ est, quare in tempore velut ignorantiae et insensibilitatis dum sit ipsa, circa ea quæ futura sunt fortior et potentior est; unde et prophetias quasdam dicunt quidam; invigilando vero ipsa animæ notitia circa futura eandem firmitatem non habet, neque prophetat? . . . Si igitur segregatur corpore in somnis, digna fieri potest deo missis visionibus (et nunquid hoc videtur Aristotelii et quibusdam ex illius schola), et a deo missas operationes et virtutes accipit, quas pulcre habet et facile commixta intellectualibus. Unde et sine somnis anima corporalibus purgata intellectuales habet receptiones et cum divina quadam operatione prævidet futurum."—Priscian, *Scriptorum Graecorum Bibliotheca* (Plotinus, *Porphyrius*, *Proclus*, and *Priscianus*), Ed. Didot. Paris, 1855. Pp. 563 and 566.

³ Chaignet, *Psychologie des Grecs*. III., page 459, note. Philo, *De somniis*, fragment from Josephus, Vol. II., page 667.

"In the treatise which precedes the present,¹ we spoke of dreams sent from heaven which are classed under the first species; in reference to which subject we delivered our opinion that the Deity sent the appearances which are beheld by man in dreams in accordance with the suggestions of his own nature.

"Now the second species is that in which our mind, being moved simultaneously with the mind of the universe, has appeared to be hurried away by itself and to be under the influence of divine impulses, so as to be rendered capable of comprehending beforehand and knowing by anticipation, some of the events of the future. . . . In describing the third species of dreams which are sent from God, we very naturally call on Moses as an ally, in order that as he learnt, having previously been ignorant, so he may instruct us who are also ignorant, concerning these signs, illustrating each separate one of them."²

There were few philosophers among the Romans, and these were not remarkable for their originality. Cicero³ was but a populariser of Greek thought, and he limits his remarks mainly to a discussion of the Stoic belief in the prophetic value of dreams. Like Aristotle, by whom he was doubtless influenced, he finds it absurd that the gods should be at pains to give us the power to foresee the future during the night, and not during the day. He holds that it is impossible to distinguish true and divine dreams from those which are false and human. The obscure interpretations of the divine dreams appear to him to have not the slightest connexion with the dreams themselves. Why does dreaming of eggs, for example, presage the discovery of great treasures? Do not numbers of people dream of eggs without ever finding riches? And as for dreams that are less dubitable, it is probable that many of them are inventions, and hence not amenable to criticism.

¹ The treatise referred to has not been preserved.

² Η μὲν οὖν πρὸ ταῦτης γραφῆ περιεῖχε τοὺς κατὰ τὸ πρῶτον εἶδος ταπομένους τὸν ὄντων θεοπέμπτων, ἐφ' οὐ τὸ θεῖον ἐλέγομεν κατὰ τὴν ιδίαν ἴνοβολήν τας ἐν τοῖς ὑπνοῖς ἐπιπέπτειν φανασίας.

Δεῖτερον δὲ εἶδος ἐν ᾧ ὁ ἡμέτερος νοίς τῷ τὸν ὅλῶν συγκινούμενος ἐξ ἑαυτοῦ κατέχεσθαι τε καὶ θεοφορεῖσθαι ἐδόκει, ὡς ικανὸς εἶναι προλαμβάνειν καὶ προγενόσκειν τι τὸν μελλόντων.

Τὸ τρίτον εἶδος τὸν θεοπέμπτων ὄντερον ἀναγράφοντες εἰκότας ἀν ἐπίμαχον Μωσῆν καλοῦμεν, ἵνα, ὡς ἔμαθεν οὐκ εἶδος, ἀγνοοῦντας καὶ γμᾶς ἀναδιάξη περὶ τὸν σημεῖων ἔκαστον αὐγάσων.—*Philo Judæus, Complete Works*, Leipsic, 1851. T. III. περὶ τοῦ θεοπέμπτου εἶναι τοὺς ὄντερους. *De eo quod a Deo mittuntur somnia.* Two books. Pp. 225-344.

³ *De divinatione*, Lib. II., 60-72.

Dreams are naught but the revivification of former sensory images, and their necessary and natural movement is in no wise connected with divination. Finally, the subtleties of the interpreters are expressly devised for the purpose of engaging assent, and accordingly there can be nothing like an experimental foundation for their supposititious science.

Lucretius assumes a similar attitude. Dreams for him are but the reappearance during sleep of the images which have occupied our thoughts during the day, and in confirmation of his theory he cites numerous examples. He says :

"The occupations which have principally held our attention during the day, those to which we have devoted ourselves with the greatest zeal, those to which the soul has applied itself with the greatest ardor, reappear in our sleep, and we abandon ourselves to them again, in that state."¹

From Lucretius we may conclude what was the attitude of Epicurus toward this question.

* * *

Having reached the goal of our investigations, let us cast back a glance over the results which we have obtained, and endeavor to draw from them some of the conclusions which they contain. In so doing, we are immediately impressed by the fact that the origin of the belief in the prophetic value of dreams in Greek and Roman antiquity is lost in traditions which antedate the legends of Homer themselves; is prior, that is to say, to the invention of writing and to the origin of civilisation; and that, on the other hand, this belief was perpetuated throughout the ages down to the time of the decadence of the Roman empire, and that afterwards, by the mingling of the pagan myths with the traditions of Christianity, this belief was handed down to the civilisations of our own day. Philo the Jew stood at the confluence of these two currents of thought,—the current which emanated from the old Greek philosophers and that which came from the renovators of Judaism; and it is with the

¹ "Et quo quisque fere studio devinctus adhaeret,
Aut quibus in rebus multum sumus ante morati
Atque in eo ratione fuit contenta magis mens,
In somnis eadem plerumque videmur obire."
—Lucretius, *De Natura Rerum*, Book IV., 962-966.

spirit of a philosopher impregnated with the ideas of Plato that Philo speaks of the Bible and of prophetic dreams.

If we examine the foundations of the belief of the ancients, we shall see that the facts, far from corroborating the belief, owe to the belief whatever validity they possess. In the sequel, they lent some re-enforcement to the belief, but at the origin the belief was far too strong to need their support. For minds who are already absolutely convinced, there is no necessity of proof, and demonstration can come only with criticism. One cannot, in fact, interpret the faith of the ancients in this regard as a proof that they had adequate grounds for accepting it.

The facts that we have related may still possess a value for persons who are antecedently convinced of the certainty of stories of this character, the falsity of which one can never prove. But a critical mind can attribute to them no value, for the reason that they can never be regarded as established. It is not permissible to invoke a new principle of explanation in nature, save when all other principles have failed; and in the present case certainly, embellished coincidences and legends which have afterwards crystallised about great historical events, do not appear to demand a supernatural intervention.

As for the ancients, on the other hand, their habits of mind naturally led them to regard the prophetic interpretation of dreams as a matter of course. But the less ground there was for the existence of this habit of mind, the greater the power it evinced. And having committed themselves to the most exaggerated imaginable symbolism, the ancients preferred accepting the mistakes made in the interpretation of dreams which were not realised, (and this was the general rule,) to renouncing their faith in the prophetic value of dreams, absolutely unfounded though this faith may have been. We are not, accordingly, justified in asserting that the origin of the belief in the prophetic value of dreams was based upon well-established instances of the realisation of dreams in some certain cases. The facts are subsequent to the belief, indeed were evoked by the belief, and acquired no significance until the belief was subjected to criticism and forced to seek its justification.

But if the belief was not based on reason from the start, why was it that those who made use of their reasoning powers failed to reject it? The reason is that the ancients, in all their thinking and philosophising, never followed the principle of the Cartesian doubt, never made a *tabula rasa* of their traditions and beliefs, never endeavored to erect structures of thought on foundations more solid and enduring than those already obtaining. They built with the data that had been handed down to them through each succeeding age, and devoted their energies rather to vindicating than to verifying their beliefs and superstitions. Hippocrates did good scientific work in the field of medicine, but he never attempted to extricate himself from the ideas of his environment. Outside the domain of medicine he remained a Greek, and as such was as much under the influence of their traditions as their laws. Even Cicero, who like Aristotle also took a determined and rational stand against the superstitious doctrines of the diviners and augurs, frequently gave evidence of sharing the common belief on this point. And possibly he actually did share it. For by vigorous critical effort and by enforced lucidity of thought one can escape momentarily from the thrall of superstitions that assert themselves in powerful and exaggerated form, while one is utterly unable to do so when they attack the mind silently and unawares. There is accordingly no ground for astonishment that among so many eminent thinkers there should have been only a few who, by the exercise of critical judgment and good sense, rejected the belief in the prophetic value of dreams; and, startling as the paradox may seem at first blush, that in Greek and Roman antiquity there exist neither facts sufficient to justify the prevalent belief in the prophetic value of dreams nor minds powerful enough to completely free themselves from this belief, it has nevertheless a claim on our indulgence.

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INTRODUCTION TO A PSYCHOLOGICAL STUDY OF RELIGION.

THIRTY years ago, in concluding his epoch-making work on *Primitive Culture*, Edward B. Tylor expressed his belief that the application of the ethnographical method to the study of religion—a method of which he may be said to have given the first important illustration—would be the next great renovating force of the science of religion and of theology.¹

The recent past has richly fulfilled Tylor's prophecy, for it is to the ethnographical study of religion from the genetic, evolutionary, point of view that is due the most essential parts of the progress recently made in the science and in the philosophy of religion.²

But however successful the investigations of the evolutionary ethnographer have been, and will continue to be, the results that have so far been secured and those upon which we may yet count cannot but leave unanswered what seems to our generation the more vital and the more pressing religious questions. A great work has been done—as to the main lines of its general conclusions it may be said to be completed—and now men's thoughts are turning in a new direction, towards a new department of science which, they expect, will take up the task and carry it to another turning point.

¹ See *Primitive Culture*, Vol. II., p. 409.

² If we were to make a complete enumeration of the factors which contribute to the transformation now taking place in religious conceptions, the narrower, but substantial, results of the critical literary studies going under the name of *Higher Criticism* would call for particular mention.

The boundaries encompassing the student of what is usually called the *History of Religion* (including comparative ethnographical, genetic, and evolutionary studies), become apparent as soon as his task and the data with which he deals are clearly understood. Beliefs, rites, customs, ceremonials, as they are expressed in the social consciousness of a people, form his subject-matter. He is not concerned directly with the religious experiences of the individual, but only with the objectified products of it, as we see them in codes of worship and in the established social beliefs of a tribe or nation. He may therefore be able to tell us what are the original beliefs and the primitive worship; what is the order of succession in any given people, or in all peoples, of the community-beliefs and rites: he may show how certain of them have passed from one tribe to the other, as the result of conquest or of the pacific infiltration of mental habits of neighboring peoples or otherwise; he may compare these beliefs and practices as they exist contemporaneously among various peoples and as they are found also in the same people at various stages of culture; and in this comparison the more permanent and universal of them will separate themselves from the more temporary and local. This, the historical, comparative, method does. But it is beyond its scope to explain, for instance, why vicarious penances give satisfaction; why sexual rites are included in certain religious ceremonials, why religious feeling bursts forth at adolescence, why faith is a requirement of religious life, what the word *faith* means, why there are apparently individuals without religion and others who without religion could not, or would not, live. These and other questions of the same nature cannot be answered until we turn from the social religious manifestations to the *individual* religious consciousness, i. e., to the facts of *immediate religious experience*.

For brevity's sake we shall speak of the Psychological Method when referring to researches of the latter kind, although, to be accurate, the name should be *Individual Psychological Method*, since the researches which it is customary to call historical belong to the general field of Social Psychology.

It will not be a waste of time to show in detail how this psy-

chological method, with which a new chapter opens in the science of religion, differs from the social studies to which we are indebted for whatever knowledge has so far been acquired on religion, and what can be expected from it. Whatever differences exist between the two methods is a consequence of the fact that one deals with the *Community-consciousness* and the other with the *Individual-consciousness*.¹ The subject-matter of the latter is the feelings, the thoughts, the desires, the impulses, (as far as they enter into religion,) of the individual as he knows them *directly in himself*; while the former deals with the results of these desires, thoughts, and feelings, when they have been transformed in a process of social consolidation and set up as *objects* of belief (doctrines, beliefs), or as modes of worship (rites and ceremonials). The psychology of religion is concerned, for instance, with the actual feelings of sin, of repentance, of dependence, as you and I experience them; while the material of the various branches of the historical disciplines is the generalised beliefs, or rather a statement of the beliefs, of a social group, on sin, on repentance, or on dependence. The Calvinistic dogma that men are born in sin and doomed to everlasting perdition unless elected, and the actual twinge of conscience of a man acknowledging his moral uncleanness and the consciousness of pardon which may follow, are, it is evident, facts of different species.

The most important remark to be made concerning these two classes of facts is that the former owes its existence to the latter: corporate religion finds its birth in the individual religious experiences, in the same sense as a political organisation owes its existence to the individuals composing it. Beliefs and ceremonials are, in a way, higher products resulting from the elemental experiences of the individual. This does not mean that the experiences of the individual are independent of the social group of which he is a part. But only that it is always through and in the separate individuals that the social organism comes to its realisation, either conscious, or unconscious. We may say therefore that the Psychology of Religion deals with the formative elements of corporate

¹ The term consciousness when applied to a community is evidently used in another sense than when referring to an individual.

religion, while the History of Religion deals with the complex products. There is here a difference similar to the one existing between the chemical elements, their properties, their modes of reaction and the complex chemical compounds. The problems of the one are not the problems of the other, and any effort devoted to the consideration of compounds, before the elements and their properties have been discovered, cannot possibly yield those important and speedy results which attend the endeavors of the scientist armed with the knowledge of the laws governing the action of the elements. And yet there is no way, at the start, before we know better, but to begin inquiries, in chemistry, upon highly complex substances and, in religion, upon social manifestations. The works of Spencer, Martineau, Caird, Pfeiderer, etc.,¹ belong to these preliminary attempts at a scientific and philosophical understanding of religion. We do not mention the pure historians whose purpose is merely to record the facts of corporate religion, and not to set forth its essence and its meaning; with him we have no business; his data are competent to answer the queries with which he sets out. Not so with the religious philosopher who, starting from data of the same kind, seeks in them answers to problems belonging properly to the individual psychology of religion. Why social come in point of time before individual studies, is too obvious to call for an explanation. We shall presently point out how incongruous and contradictory are the philosophical results of this unavoidably bungling beginning.

It seems to us that the chief problems of individual religious

¹ Psychological considerations on individual religious consciousness are to be found in a great many old and recent books, some of which bear inscribed on their title page the words "Psychology of Religion," "based on Psychology," or the like. But the little they contain on individual religion is so far from being systematically set forth, or of conforming in any other way to the scientific canon, that no mention is required of them here. There have been published, however, in the philosophical journals a number of papers inspired more or less by a true scientific spirit and proceeding from persons acquainted with the recent advance of psychological science. See in particular the two papers of E. Starbuck in the *American Journal of Psychology* for 1897, subsequently republished in book form (*The Psychology of Religion*), and the author's own contribution in the same journal for 1896, pp. 309-385.

life may be put down, summarily and in a provisory form, as follows:

1. What are the motives of the religious activities; what needs do they express and what ends do they secure?—Particular attention will have to be paid, when dealing with the meaning of religious activities, to the incongruity oftentimes existing between practices and the needs they are supposed to express and satisfy, or the end they are expected to reach. This will be especially necessary with reference to practices of long standing, having become habitual or, perhaps, even instinctive.
2. The problem of the means by which the religious impulses express themselves and through which the needs seek their satisfaction.—The word "means" includes in this sense both the religious practices and the conceptions regarding the agent or agents, or the channels by or through which religious satisfaction is sought. It is here that belongs the problem of the Idea of God and of the conception of the dual nature of the forces at play in the world, a conception which is at the basis of the differentiation of human activities into religious and non-religious. Here also may be placed the question of the influence of the impulses and needs upon beliefs and the reversed one of beliefs upon needs.

The genesis and the evolution of the religious motives, of the needs and of the means would be a part of these two large problems.

3. The relation existing between the means (practices and beliefs) used and the satisfaction they produce or are expected to produce. Otherwise expressed, it is the problem of the *efficacy* of the religious means. It involves the gigantic question of the motor power of ideas; it is a chapter of psycho-physiological dynamics. The reader familiar with the current literature on Religion may grasp more fully the purport of this problem, if we say that it is a restatement, from the positivist, scientific point of view, of what is usually termed, very inadequately, the investigation of the relation of man to God.

Contributions towards the solution of these questions would mean the discovery of a key to many a time-honored puzzle, such

as the reason of the universality and persistency of religion; the reason of the mongrel composition of religions; the apparent or real antagonism existing in particular religions between their several constituting elements and between them and secular activities,—science, for instance; the reason of the priceless value ascribed by many to religion and wherein it really lies at the various stages of its evolution and to what agencies its benefits are to be ascribed. The religious needs and their evolution, together with the source of their satisfaction, once known, it would become possible to intelligently encourage the transformation of existing religious forms that they may become better adapted to their function and to foresee their future.

Whether, and how thoroughly, these fundamental questions can be solved at present depends, it is evident, upon the degree of perfection reached by the general science of individual psychology. Although it is unfortunately true that that science is still in its infancy, the little it has already accomplished is sufficient to make the placing of religious life among the subjects for successful investigation a possibility.

Considered from the practical point of view, the psychology of religion may be expected to lay down foundations not only for a reformed dogmatics in closer agreement with the modern religious conscience, but also for a truer, and therefore a more effective, religious practice. To the Theologian and to the Pastor, a psychological investigation such as is here advocated is nothing less than a return to nature,¹ i. e., a return to the *ultimate* origin of religion. The cry for a return to the origin is a familiar one; it has been one of the usual watch-words of the Christian Reformers. But with us, as in other religions, it has come to mean nothing more than a return to the *primitive* practices and beliefs. The superstition of the perfect adequacy for all men and consequent finality of the archetype is still upon us; it is still an axiom with those who have remained within the Church. Thus it has come to pass that

¹ We use the word *nature* not as it is often done to distinguish the physical from the psychical world, but as embracing both; it is for us synonymous with *that which exists* in any and every order of existence.

religious consciousness is attired in the misfit garment of peoples of sensibilities and culture different from ours, nay, that it has in some measure been moulded by it, instead of itself shaping the garment. The psychology of religion is a return to nature *in its present truth*, a return to the ultimate fitness of things, through the investigation and critical study of the genuine needs of the individual and of the means that may best satisfy them. We hold this to be the question before us to-day. Guyau wrote a few years ago: "Formerly the question was whether religion is revealed or natural; to-day the question is whether religion is or is not true, whether it is or is not the product of an intellectual error, of a sort of inevitable optical illusion."¹ That the religious philosopher and scientist is to approach the religious problems from another, broader and more fertile point of view than the one which Guyau thought the latest and final one, will, we trust, be made clear in the sequel.

But we should not proceed further before having paid serious attention to the general conclusions reached by the religious philosophers. It has been a favorite custom with them to put up the concentrated results of their toil into little formulæ, commonly called *definitions* of religion. Although they evince most astonishing divergencies, extending even to hopeless contradiction, they will, when considered together and compared with each other, at least warn us away from certain false conceptions which have sadly obscured the view of otherwise clear-sighted men. It must be confessed that the definitions of religion would afford a happy topic for a malicious person bent upon showing the quackery of the Doctors in religion. Martineau, for instance, affirms that religion is "a belief in an Ever-living God, that is, in a Divine mind and will ruling the universe and holding moral relations with mankind"; Romanes chimes in and says: "To speak of the religion of the Unknowable, the religion of Cosmism, the religion of Humanity and so forth, where the personality of the First Cause is not recognised, is as unmeaning as it would be to speak of the love of a tri-

¹ Guyau, *L'irreligion de l'avenir*.

angle, or the rationality of the equator;"¹ but Brinton flatly contradicts them both, saying: "No mistake could be greater than to suppose that every creed must teach a belief in a God or Gods, in an immortal soul and in a Divine government of the world. . . . The religion of to-day which counts the largest number of adherents, Buddhism, rejects every one of these items."² Theologians anathematise atheistic science, while its champions claim that "true science and true religion are twin sisters . . . science prospers exactly in proportion as it is religious," etc.,³ or that "the discipline of science is superior to that of our ordinary education because of the religious culture it gives."⁴ And there are those who regard religion, even in its crudest beginning, as the admirable manifestation of God in man, while others call it bluntly superstition, or the product of an intellectual error unavoidable in the infancy of mankind but to be overgrown as soon as possible. There is the Religion of Humanity, the Religion of Art, the Religion of Science, the Religion of Reason, the Religion of Cosmism. The Doctors have not yet risen to the dull harmony of omniscient agreement!

On examining the definitions of Religion, one finds that a psychological classification in three groups makes room for them all. Several other classifications are possible.⁵ We give the preference to the following, because it brings into relief better than any other the faulty psychology which enters for so large a share in this lamentable confusion of ideas about Religion. In the first a specific intellectual element is given as the essence or as the distinguishing mark of Religion; in the second, it is one or several specific feelings which are singled out as the Religious Differentia; while in the third group the active principle, the cravings, the desires, the impulses, the will, take the place occupied by the intel-

¹ G. J. Romanes, *Thoughts on Religion*.

² Brinton, *Religion of Primitive Peoples*.

³ Huxley.

⁴ Spencer's *Education*.

⁵ See, for instance, that of Wundt (*Logic*, I., Chap. II.) in three groups: (1) the Autonomous theories (Schleiermacher's, for instance); (2) the Metaphysical theories (Spencer's and Hegel's); (3) the Ethical theory (Kant's).

lect or the feelings in the other classes. Religion becomes, in this view, an endeavor to realize a certain type of being, an instinct, a certain kind of actions, etc. Here are one or two definitions of each class by way of illustration, others will be found in the appendix.

Herbert Spencer finds the vital element of all religions in the realisation on the part of man, "that the existence of the world with all it contains and all which surrounds it is a mystery ever pressing for interpretation." We have already quoted Martineau. Romanes says, "Religion is a department of thought having for its objects a self-conscious and intelligent Being."—*Thoughts on Religion*. Goblet d'Alviella finds religion in "the belief in the existence of superhuman beings who interfere in a mysterious fashion in the destiny of man."—*The Idea of God*. Max Müller, whom we shall have occasion to quote later on, sees in religion the proof of the existence in man of a third faculty which he calls "simply" [!] the faculty of *apprehending the Infinite*.

In the second class the vital element is not a perception or a conception; it is not a matter of the intellect but of the feeling.

Schleiermacher is the best known of the representatives of this class. He denied in his speech on "The Nature of Religion" the thesis reaffirmed subsequently by the intellectualist school. "Religion," said he, "cannot and will not originate in the pure impulse to know. What we feel and are conscious of in religious emotion is not the nature of things, but their operation upon us. What you may know or believe about the nature of things is far beneath the sphere of religion . . . any effort to penetrate into the nature or substance of things is no longer religion, but seeks to be a science of some sort." The peculiar sphere of religion according to him is feeling. "It is neither thinking nor acting, but intuition and feeling." And speaking of the conception of God and of immortality, he wrote, "only what in either is feeling and immediate consciousness, can belong to Religion." In a subsequent work (*The Doctrine of Faith*) he reaches the well-known definition: "Religion is a feeling of absolute dependence."

Daniel Greenleaf Thompson wrote: "Religion is the aggre-

gate of those sentiments in the human mind arising in connexion with the relations assumed to subsist between the order of nature (inclusive of the observer) and a postulated supernatural."—*The Religious Sentiment of the Human Mind*. And Herbart: "Sympathy with the universal dependence of men is the essential natural principle of all religion."—*Science of Education*.

We have here the attitude of Faust:

"Nenn's Glück! Herz! Liebe! Gott!
Ich habe keinen Namen
Dafür, Gefühl ist alles."

The glaring one-sidedness of the preceding definitions has gradually been recognised, and, to-day, there is a marked tendency to bring forward and place the emphasis upon the desires and the will.

To the third class belongs Bradley's definition; he writes in *Appearance and Reality*, p. 453: "We have found that the essence of religion is not knowledge, and this certainly does not mean that the essence consists barely in feeling. Religion is rather the attempt to express the complete reality of goodness through every aspect of our being." Those of Feuerbach, Schopenhauer, Comte, Edward Caird, A. Sabatier, Daniel Brinton, Réville, H. M. Stanley,¹ Henry, R. Marshall, fall also into this group. The recent book of the last named author, *Instinct and Reason*, is concerned chiefly with religion. In it Marshall maintains that religion is an instinct on the whole directly disadvantageous to the individual, but beneficial to the race in that the instinctive religious activities imply restraint of individualism and greater subordination to the will of the whole. It is because of this racial value that religion has survived and become instinctive. This view is, as to its essential features, the antithesis of Schleiermacher's. While the latter is at pains to convince us that religion is "pure subjectivity," that "religion is

¹ Stanley belongs rather to the second class. See his very suggestive paper in the *Psychological Review*, 1898, pp. 254-278, "On the Psychology of Religion." The reverential and worshipful emotion is for him the essence of Religion. The criticism we direct a little further on against Max Müller and Guyau is also applicable to him.

based on feeling alone," and that "by itself it does not urge men to activity at all," "it is morality which is based on action;" the former affirms that "the restraint of individual impulses to racial ones (the suppression of our will to a higher will)" seems "to be of the very essence of religion."¹

In the third class might also be included the definitions of the few authors who refuse altogether to see in any one of the three partial manifestations of psychic life which we have been able to use separately as the basis of our classification, the particular *essence* of religion. The definitions of this type have so far acquired little influence for the reason that they have nowhere, as far as we are aware, been supported with a sufficient show of evidence, and especially because their meaning and the point of view they represent have not been systematically carried out into the problems of religious philosophy. The authors who have been ready to declare that "in the religious consciousness all sides of the whole personality participate," did not usually mean anything more than the truism admitted by everybody; they have none the less remained in an eccentric position. Pfleiderer, for instance, to whom belongs the quotation just made, writes soon after: "Of course we must recognise that knowing and willing are here [in religion] not ends in themselves, as in science and in morality, but rather subordinate to feeling, as the *real center* of religious consciousness."

How can so many different and even contradictory opinions be possible? How can they all be held and defended? It has no doubt occurred to the reader that the source of these divergences lies not so much in fundamental differences of opinion as to what in actual life deserves the name religion. On this we would find, we shall venture to say, most of our authors in agreement. It is to be found rather in a deficient understanding of psychical life in general. Intellectual curiosity, perception, reflexion, intuition, feel-

¹ *Instinct and Reason*, p. 329. The preceding quotations are not sufficiently comprehensive to do justice to the authors cited. They may even be misleading. To prevent misinterpretations, as well as to present with more fullness some of the most interesting and typical opinions on religion, we give in an Appendix to this paper a summary of several of them. We have, moreover, added a large number of concise definitions of religion.

ing, belief, desire, volition, instinct, etc.,—each author has evidently a different idea of the meaning of these words, or, at least, of the function in life of that which they designate. Let two persons agree as to their general psychology and they could not be very far apart in their understanding of religion. A large part of the necessary ground work of a Philosophy of Religion is furnished by general psychology and another part by the psychological analysis of those particular experiences or manifestations called Religion. This is recognised, at least tacitly, by all philosophers, since their books contain long psychological considerations to prepare the way for the generalisations. Not infrequently the "Philosophy of Religion" turns out to be little more than more or less crude and flighty discussions of social religious psychology. It should be then openly admitted that the equipment of the Philosopher of Religion includes the acquisitions of psychological science and the training which the study of that science gives; let it be recognised frankly that the gifts of the mystic, the learning of the theologian and of the historian of philosophical thought, and the acuteness of the metaphysician are not sufficient to the task. Let us cease to act as if we believed in the methodological principle of classical philosophy: let the superstructure be built, the foundation will take care of itself.

If the philosopher of religion has listened to the lesson of history, he will look for light to psychological science before he undertakes the task so many have failed to achieve.

In spite of their insufficiency—evident to any one not under the spells cast over the thinking world by the intellectualistic and by the affectivistic philosophy—the definitions of the first and second class are still those which meet with the widest acceptance. Intellectualism in religion offers a beautiful illustration of the power of a long-established idea to exclude others, even though they be not inconsistent with it, and thus make us blind to half the facts pressing for recognition. Max Müller, for instance, needed the assaults of criticism to perceive that a mere "perception of the Infinite" could not fairly be called a religion. In his Gifford Lectures of 1888 on *Natural Religion* he assents to the criticism to

which his definition had been subjected, and adds to it, by way of amendment, the clause: "A perception of the Infinite under such manifestations as are able to influence the moral character of man." "The fact," says he, "was that in my former writings I was chiefly concerned with dogmatic Religion. . . . Still, I plead guilty to not having laid sufficient emphasis on the practical side of Religion; I admit that mere theories about the Infinite, unless they influence human conduct, have no right to the name of Religion." But this truth, although formally recognised by him, never acquired in his mind the full meaning belonging to it. He continued to write as if a bit of metaphysical speculation could constitute a religion.

Guyau is, in this respect, no less interesting. At the beginning of his book, *L'irreligion de l'avenir*, as he states that sociality is the basis of religion, and as he passes in review the one-sided conceptions of some of his predecessors and declares that Schleiermacher's and Feuerbach's definitions should be superposed, the reader feels assured that he has cut loose from the intellectualistic point of view. "The religious sentiment," says he, "is primarily no doubt a feeling of dependence. But this feeling of dependence, really to give birth to religion, must provoke in one a reaction,—a desire for deliverance." But Guyau, who, like Max Müller, is apparently able to see, when his attention is drawn to it, that an idea, a concept, a perception, in short, a mere intellectual fact, can by no means be singled out as the substance of religion, has nevertheless kept to the intellectualistic attitude. The conception which the book defends is that "religion is the outcome of an effort to explain all things—physical, metaphysical, and moral—by analogies drawn from human society, imaginatively and symbolically considered. In short it is a universal sociological hypothesis, mythical in form." An effort to *explain* is, for Guyau, the efficient cause of religion and an *explanation of the world's puzzle* is a religion. It is once again Spencer's definition with the addition of a statement concerning the analogy according to which the puzzle is explained.

Guyau, like so many others, has succumbed to the most dangerous illusion besetting the philosopher. Nothing can be so real and so persistent to the thinker as thought; it may even become

the only reality. The artist, the voluptuary, the mystic, never lose sight of the feelings, because in feeling they find their life; the man of action cannot forget the impulses, the desires, the will; but the philosopher, who is so only by virtue of his intellectual activity, is condemned by the very nature of his employment to intellectualistic one-sidedness, unless the Gods have poured upon him all the treasures of the horn of plenty.

It is not the place here to point out the defects of intellectualism and the errors which it fosters, but we may well mention in passing two points deserving of special attention in a study of religion.

1. The habit of the intellectualistic philosopher of looking at life from the eccentric, one-sided point of view which make sensations and ideas appear in the foreground and reduces everything else to insignificant dimness, makes it impossible for him to take sufficiently into account the existence of unconscious activities and of their influence upon thought and action. He does not see that consciousness follows oftener than it leads, that it is an intermittent and heterogeneous light. Therefore neither those manifestations of religious life which are instinctive, nor the import of the feelings and beliefs connected with them can be properly understood by him. It cannot be said, for instance, that the beliefs connected with the several religious ceremonies and practices express always adequately their meaning and their purpose. It is often quite otherwise. Religious actions often have their root in inherited tendencies, the *raison d'être* of which, if ever conscious, has now lapsed, partly or wholly into the unconscious. And the actual beliefs connected with these performances are similar in point of irrationality to the notions by which certain insane persons sometime try to explain and to justify to themselves their deeds or their imaginary experiences.

2. One of the most mischievous of the particular evils wrought in religion by intellectualism is that the question of the existence of God has been forced upon the attention of the students of religion as the paramount and sometimes as the only religious problem, to the detriment of other inquiries. An ontological problem

has become in most minds synonymous with the religious problem: "The province of the philosophy of religion is to furnish a rational ground for the belief in God," says Otto Pfleiderer; and Professor Ladd in his introduction to Lotze's *Philosophy of Religion* writes: "The philosophy of religion is, of course, primarily a speculative or theoretical treatment of the proofs for the being of God, of his attributes, and of his relations to the world of matter and finite spirits." This task is no more than a fragment of the philosophy of religion; but to this point we shall return at a more opportune moment, merely recording here an emphatic protest against this opinion.

It must be said further that the question of the "existence" of God is not the real problem; it lives upon the interest felt by man in another, the true problem which has been, in part at least, lost sight of by the professional thinkers. It has thus happened that men have come to deceive themselves into the belief that they really care for the existence of a Personal First Cause or of a Moral Order in itself, while that with which they are concerned is solely their relation, and that of the world in which they live, to these possible existences. We are absolutely indifferent to the fate of the First Cause in as long as our own fate and that of the world surrounding and affecting us is not at stake. For this most normal and rational trait we need not blush. The ultimate queries we want answered when we consider the question of the existence of God, or of a Moral Order is one or several of the following: Shall I get the meat and drink I want and for which I am willing to pray? Shall the dear one be healed by a divine hand? Shall I get the moral support, the sense of fellowship after which my weak flesh yearns? Shall the right ultimately triumph? Is the matrix of the Universe of flesh only or is it animated by a spirit kindred to mine, a spirit which has built and is leading this world so as to satisfy my highest longings for universal harmony? When this is recognised the classical problem of the existence of God, hardened and pressed into ruts as it has become by centuries of stubborn but well-nigh fruitless effort at its solution, assumes a fresher aspect and offers new points of attack. The foremost questions asked will now be:

What does man expect from the existences in which he would like to believe? Are the needs of humanity to be satisfied only by the existence of, or through the belief in, a particular Being or Order, or can they be satisfied otherwise?

If, leaving aside the question of the adequacy of religious definitions, we ask what the possible value of a definition might be, the most that can be said is that its highest usefulness would be the one belonging to a class-description. It would hardly be worth the labor which has been bestowed upon the matter. It is a misfortune that the time and the talent consecrated to this end have not been directed towards the discovery of a germinal principle instead of that of a description; a principle corresponding to the evolutionary principles in biology, for instance. And further, if one looks closely into these definitions, one is struck with the quite unnecessary emptiness of most of them. What is the use of saying with Bradley that religion is the attempt to express the complete reality of goodness through every aspect of our being? The Sunday School child, who says religion is all that is good and right, is just as enlightening. And what is it that is meant when this or that is called the "essence" of Religion? Does essence mean that which in itself is sufficient to constitute religion? No, that cannot be. The thought of God, or of the Universe, conceived of as a whole of which I am a part, or some other such idea, must be present when the "feeling of dependance" is experienced. Schleiermacher himself would affirm this. And no one would venture to maintain that belief in God is, in this first sense, the essence of religion. Or does the expression mean that which is found nowhere else in man's life? Not one of the definitions using the word "essence" could be made to agree with this second interpretation without extending the bounds of religion beyond what the author of the definition himself would admit. Is "essence" synonymous with "the most prominent conscious factor," or with "the most important part" of religion? How could this third opinion be maintained, seeing how men differ, how, for one man, the characteristic religious experience is a voluptuous trance obtained by the fixation of the attention upon Christ, or some other religious ob-

ject; while for another the deepest religious experience lies in the preparation and performance of a benevolent action. As to the several "factors" of religious experience, who has ever seriously tried to estimate their relative value or importance? How is it to be done?—The word "essence" had better be left unused; it does not add anything definite enough to make its presence desirable in a definition of religion.

The vacant term *relation* is often used without any attempt at defining the kind of relation meant. Sometimes the relation binds two Infinites. Max Müller, in his *Theosophy*, page 360, informs us that religion is a bridge between the visible and material world and the invisible and spiritual world. That bridge is described as establishing a relation between the Infinite man discovers in nature and the Infinite man discovers in himself. These Infinites are such particular stuffs that a special faculty is needed for their apprehension; "there will be and can be no rest till we admit that there is in man a third faculty which I call simply the faculty of apprehending the Infinite, not only in religion, but in all things—a power independent of sense and reason, a power in a certain sense contradicted by sense and reason, but yet a very real power." There is something in this passage which makes one think of the Cabala. Who would not look upon the following definitions as farcical? (And yet they are neither better nor worse than many a famous religious definition.) Commerce is acquisitiveness touched with a feeling of dependence, or, commerce is a business relation. Morality is a social relation, or, morality is a belief in virtue. Virtue is an absolute feeling of dependence upon truth; and the like *ad libitum*.

* * *

So much by way of criticism of religious definitions. And now along what route shall we proceed in our investigation of immediate religious experiences in order to reach a comprehensive understanding of religion? To find our cue we need only the guidance of the most significant and far-reaching achievement of modern psychology. It is the result of the co-operation of physiology and psychology and concerns the relation which has been found to exist between

what used to be called the "faculties" of the soul and physiological processes. When the conclusion that the reflex-arc was the type of all living activity had been reached; and when it had been discovered that sensations were necessarily correlated with stimuli travelling along afferent nerves (the first segment of the reflex-arc); thought, reflexion, with the central nervous activity (the middle segment of the reflex-arc), and the manifestations of the will, with the stimuli travelling outwardly along efferent nerves to the muscles; psychic life assumed at once a new aspect. It became evident that just as muscle-contraction (movement) is the natural and unavoidable end of a stimulus travelling along the reflex-arc, so on the psychic side, the will or the desire to act is the only normal end of consciousness; while thinking is seen to be in Wm. James's¹ words merely a "place of transit" indicating the existence of complex possibilities as to the action of which reflexion is a precursor.

As to feeling, the other "element" of psychical life, it is looked upon either as being an attribute or an independent accompaniment of other psychical experiences. But, however that may be, it is agreed that it does not exist independently. It is always experienced together with sensation or idea. We reach therefore the conclusion that neither thought nor feeling exist for themselves; they cannot be end in themselves, but exist only as part of a complex process ending in, or at least tending to, action—when objectively viewed.

Action and its psychical correlates and associates, craving, desiring, willing, which until the recognition of the psycho-physiological parallelism just stated was overshadowed by the intellect or the feelings, assumed from that time on a preponderant place in the theories of mental life. Schopenhauer, Wundt, and a host of younger men endeavored to recast the theories of psychic life around the will; they chose the word *Voluntarism* to characterise their point of view. But this elevation of the will to a prominent place means at the same time, as we have shown, its co-ordination with

¹ See his essay "Reflex-action and Theism" in *The Will to Believe and other Essays*.

the other psychic processes, since the co-relation existing between psychic life and the reflex-arc mechanism implies the organic unity of the triple psychical process. Neither one nor the other of the part-processes can be looked upon as the essence or the center of any particular pulse of psychic life; still less can any one of them be conceived as existing separately. To speak of any whole manifestation of life as being in its "essential" nature intellectual or affective or volitional, is to misconstrue the facts, for, although it is admitted that any expression of conscious life can be analysed into its successive moments, (sensation, reflective ideation, desires, impulses, will's determination, etc.,) and that one or the other of these constituents can be at times preponderantly present to the subject's consciousness, it does by no means follow that that particular pulse of life *is* an idea, or a volition, or a feeling, or that one or the other of these part-processes can properly be looked upon as the *essential nature* of the whole. A time sequence may exist, and, as a matter of fact, does exist: volition follows upon sensation and ideation. But this fact does not constitute volition the "essence" of psychic life. Such a deduction would be no better than the chemist's conclusion, that because water can be decomposed into hydrogen and oxygen, and that, from a certain point of view, oxygen is the most important of the two elements, therefore it is the characteristic component or the essence of water; and it would be no more correct for him to say that water, if considered as to its properties, is O+H. It is nothing of the kind: there is no likeness between the properties of the components and those of water. All this seems simple enough; it has become a matter of course to those who have been brought up in the atmosphere newly created by the psychological conception we have found necessary to outline above; but religious philosophy and religious science have so far, with insufficient exceptions, not yet undergone the recasting which its introduction makes necessary. Of this we have found abundant proof a little while ago.

In the sphere of religion this doctrine means not only that every pulse of religious life includes ideas and feelings but also that it finds its objective expression in action. The facts bear out this

conclusion. Religious life is found to manifest itself always and everywhere in actions, or at least in movements, as well as in thought and feeling. There is no experience of the individual consciousness which the subject is willing to call religious, which does not end in a deed.¹ Sacrificing, praying, the thousand and one fashions of worship, are outwardly perceptible religious actions. But even when there is no apparent external activity, even in the most "spiritual" worship, when the coarser outward appeal for help is not to be detected, even there religious experience finds its unavoidable bodily expression in an activity which can properly be regarded as the residuum of inhibited movements: prayer becomes a "lifting up of the heart to God," and the burning of incense is replaced by the "offering up" of one's talents, of one's life for Divine Service. In these subtle utterances of religious needs the final segment of the reflex-arc is just as surely, if not so obviously, present as in the offering of spotless lambs. There is, in the former as well as in the latter case, a will affirming a desire and the bodily concomitant thereof, i. e., movements, were it only the slight contractions and relaxations of the facial muscles making up a yearning countenance, inward speech, changes in the circulation of the blood, in the respiration, in secretions and all the varied muscular tensions which are part of the *in-tention* of the soul to reach God. These multiple activities are remnants of the once unrepressed and aggressive ways of men of lower civilisation when seeking assistance from the Divinity.

We have said that every pulse of religious life includes thinking and feeling. This is not always true. Inasmuch as action tends everywhere to become unconscious by habituation, we may expect to find at times certain religious activities performed automatically or instinctively. This point will receive consideration elsewhere.

The student of the psychology of religion has, then, before him as subject-matter complex psychological processes culminat-

¹ In making this statement we anticipate one of the conclusions to be reached later.

ing actually or prospectively in certain classes of action called religious activities.

This is the first point we desire to bring in unmistakable prominence. How deeply and variously the implications of this view affect the general problem of the "nature" of religion, will become apparent as we proceed. At present we shall simply find in this idea the guiding line we are looking for. The first question asked in presence of an action, or of a class of actions, we wish to understand, is what was its motive and what was its end. This procedure, followed in the humdrum business of life, is also the right one for the psychologist of religion. Our first queries will therefore be concerning the motive or motives and the end or ends of religion. Subsequently we will pass on to the consideration of the "channel," or "channels," through which the religious ends are realised.

It will be found that the religious impulses, the religious needs and the religious ends are also the impulses, the needs and the ends of other activities, that they are not the exclusive possession of religious life; while the conception of the channel, or, to put it otherwise, the conception of the causal characteristics of the religious agent differentiates religious from non-religious activities.

APPENDIX.

In this Appendix the reader will find a fuller critical exposition of the religious conceptions of Max Müller, Herbert Spencer, Schleiermacher and Henry R. Marshall, than the one which could find place in the body of the article. He will moreover find in it a number of opinions about religion taken from the works of other distinguished students of religion.

MAX MÜLLER.¹

In the *Science of Religion* Max Müller wrote: Religion is "a mental faculty or disposition, which, independent of, nay in spite of, sense and reason, enables man to apprehend the Infinite under different names, and under varying disguises. Without that faculty, no religion, not even the lowest worship of idols and fetishes.

¹ The quotations are from the *Origin of Religion*, lectures delivered in 1878, and from *The Science of Religion*, lectures delivered in 1870.

would be possible; and if we will but listen attentively, we can hear in all religions a groaning of the spirit, a struggle to conceive the inconceivable, to utter the unutterable, a longing after the Infinite, a love of God." That faculty he calls "Faith."

The use made in this book of the term "faculty" was vigorously attacked, and, yielding in a measure to the objections raised, he declared in the *Origin of Religion* that he does not mean to say that there is a separate religious consciousness; "when we speak of faith as a religious faculty in man, all that we can mean is our ordinary consciousness so developed and modified as to enable us to take cognizance of religious objects. . . . This is not meant as a new sense, . . . it is simply the old consciousness applied to new objects." If "faculty" is an ambiguous or dangerous word, he is perfectly ready to replace it by "potential energy" and to define the subjective side of Religion as "the potential energy which enables man to apprehend the infinite." That "faculty" or "potential energy," also called "Faith," is, like reason, a development of sensuous perceptions, but one of another sort. The human mind, according to Max Müller, is made of three "faculties" or "potential energies": Sense, Reason, and Faith. The two last named being different developments of sensuous perceptions. "Our apprehension of the Infinite takes place independently of, nay in spite of, sense and reason. Their objects transcend the apprehensive and comprehensive powers of our sense and our reason. The facts of Religion, subjective and objective, can be explained only by an appeal to that third potential energy." "We have in that perception of the infinite the root of the whole historical development of the human faith." (P. 43.) He admits that at first it is far from a clear perception.

What does Max Müller mean by "perception" and what does he mean by "Infinite," the two words on which depends the sense of his definition? The value of his conception of Religion hangs, it is evident, upon the possibility of putting some kind of definite meaning into these words. The only critical remarks we want to make here bear upon these two words. Perception seems at times in Max Müller's writings to involve feeling; perhaps even to be nothing more than a feeling-state. At other times it seems to be synonymous with apprehension; three terms which to-day not even a beginner in psychological science would confuse. On page 43, of the *Origin* he writes, for instance, "with every finite perception there is a concomitant perception, or, if that word should seem too strong, a concomitant sentiment or presentiment of the infinite."

We have already said elsewhere that criticism made him see, in an insufficient way, that a simple "perception of the Infinite" could not be called a religion and that he added to his definition "under such manifestations as are able to influence the moral character of man."

As to what "Infinite" stands for in man's experience he cannot well say. The word is useful, however, because vague and mysterious; it does well in a statement on the nature of Religion. Spencer, it will be recalled, denies, in his *First Prin-*

ciples, the possibility of thinking the Infinite, and therefore he holds that "Infinite" represents an illegitimate conception. At any rate, and whatever may be the meaning Max Müller was able to put for himself into that word, it is surely not communicated to the reader in any intelligible way. The only use of a word such as "Infinite" in a definition of Religion is to feed megalomania, an apparently unavoidable disease in man at a certain stage of self-consciousness. Those "who have no particular talent for the finite, but a general sense that the infinite is the right thing for them," will revel in the apprehension of the "Infinite," but as Felix Holt says of the Renés and Byrons, "they might as well boast of nausea as a proof of a strong inside."

It would have been difficult to frame a definition of Religion so impressive in appearance and at the same time so devoid of substance as the one to be found in the works of the learned Orientalist. If we have taken the trouble to examine it with some detail, it is only because it is still typical of the kind of ideas cherished by a large number of distinguished people, concerning the essence of Religion.

HERBERT SPENCER.

Herbert Spencer, in his *First Principles*, sets about reconciling Religion and Science upon terms of a real and permanent peace between them. It is this purpose which leads him to seek for the ultimate truth of Religion.

He begins with a critical examination of the essential religious conceptions, Atheism, Pantheism, Theism, and he finds that "when rigorously analysed they severally prove to be absolutely unthinkable." "Instead of disclosing a fundamental verity existing in each, our investigation seems rather to have shown that there is no fundamental verity contained in any." (P. 43.) But this is not his final conclusion: "We find [in every form of Religion] an hypothesis which is supposed to render the Universe comprehensible. Nay, even that which is commonly regarded as the negation of all Religion—even positive Atheism, comes within the definition; for it, too, in asserting the self-existence of Space, Matter, and Motion, which it regards as adequate causes of every appearance, propounds an *a priori* theory from which it holds the facts to be deducible. Now every theory tacitly asserts two things: first, that there is something to be explained; secondly, that such and such is the explanation. Hence, however widely different speculators may disagree in the solutions they give of the same problem, yet by implication they agree that there is a problem to be solved. Here then is an element which all creeds have in common. Religions, diametrically opposed in their overt dogmas, are yet perfectly at one in the tacit conviction that the existence of the world, with all it contains and all which surrounds it, is a mystery ever pressing for interpretation. On this point, if on no other, there is entire unanimity."

"That this is the vital element in all religions is further proved by the fact that it is the element which not only survives every change, but grows more distinct the more highly the religion is developed."

"Nor does the evidence end here. Not only is the omnipresence of something which passes comprehension, that most abstract belief which is common to all religions, which becomes the more distinct in proportion as they develop, and which remains after their discordant elements have been mutually cancelled; but it is that belief which the most unsparing criticism of each leaves unquestionable—or rather makes ever clearer. It has nothing to fear from the most inexorable logic; but, on the contrary, is a belief which the most inexorable logic shows to be more profoundly true than any religion supposes. For every religion, setting out though it does with the tacit assertion of a mystery, forthwith proceeds to give some solution of this mystery, and so asserts that it is not a mystery passing human comprehension. But an examination of the solutions they severally propound shows them to be uniformly invalid. The analysis of every possible hypothesis proves, not simply that no hypothesis is sufficient, but that no hypothesis is even thinkable. And thus the mystery, which all religions recognise, turns out to be a far more transcendent mystery than any of them suspect—not a relative, but an absolute, mystery.

"Here, then, is an ultimate religious truth of the highest possible certainty."
(Pp. 43, 44, 45, 46.)

What the place occupied by the feeling is in this intellectualistic interpretation, is not altogether clear. But this at least is made evident: it is not the "vital element" of religion. The feelings which "respond" to religious ideas are the religious feelings.

The primary dependence of religion upon the recognition of the great Mystery is once more emphasised in the chapter on "The Reconciliation," in which he declares that what makes a religion become more religious is that it "rejects those definite and simple interpretations of nature previously given." "That which in religion is irreligious is, that, contradicting its deepest truth, it has all along professed to have some knowledge of that which transcends knowledge; and has so contradicted its own teachings," its supreme verity.

Müller and Spencer are not so far apart as the first impression might suggest. The differences between them are those separating men who would have reached the same conclusion if one of them had not remained entangled on the way. Max Müller affirms nothing which cannot be brought into substantial agreement with Spencer's opinion, provided the former be interpreted in the light of the clearer consciousness of the latter. Let, first, the words "perception," "apprehension," "sentiment," used interchangeably by the former be dismissed and replaced by "recognition"; and, secondly, let "Infinite" be interpreted as meaning the ultimate mystery of things and they will find themselves in agreement. This benevolent interpretation of Max Müller will not appear altogether illegitimate when we recall that he designates the faculty by which we apprehend the Infinite "Faith," and also that he sees no objection to regarding the Infinite as an object of "sentiment" rather than an object of "perception."

One critical remark only we shall pass upon Spencer's view of religion. Granted that there is a "Mystery ever pressing for interpretation"; granted also that man strives after its interpretation; the vital element of religion has not yet been reached. It will not be found until the further inquiry is answered: why that inquisitiveness of man? Why is it that having once recognised the Mystery he does not let it alone; why does he want to understand, to explain it? The answer to this question would bring us at least a step nearer the heart of the problem. Spencer stops short of it as the true intellectualist that he is.

SCHLEIERMACHER.¹

To prevent a possible misunderstanding, let it be said at the start that Schleiermacher did not believe that feeling could exist independently of the other mental processes. He says explicitly of perception, feeling and activity, that "they are not identical and yet are inseparable."

Religion consists for Schleiermacher in certain feelings holding a definite relation to the life of action (Morality) and to the life of thought (Science, Philosophy). Religion is passivity, it is contemplation. By itself it does not urge men to activity at all. "If you could imagine it implanted in man quite alone, it would produce neither these nor any other deeds. The man . . . would not act, he would only feel." (P. 57.) If Religion does not belong to the world of action, it does not any more belong to the world of thought: "Religion cannot and will not originate in the pure impulse to know. What we feel and are conscious of in religious emotions is not the nature of things, but their operation upon us. What you may know or believe about the nature of things is far beneath the sphere of Religion." (P. 48.) He makes, very legitimately, a sharp distinction between the ideas which arise when the feelings are made the objects of reflexion and the feelings themselves: "If you call these ideas," says he, "religious principles and ideas, you are not in error. But do not forget that this is scientific treatment of Religion, knowledge about it, and not Religion itself." (Pp. 46 and 47.)

These two points, viz., that Religion is not morality and that it is not knowledge, are persistently emphasised in Schleiermacher's writings. It does not appear so clearly how the feelings which constitute Religion are generated and how they differ from the non-religious feelings. "Your feeling," says he, "is piety,—[a word for him synonymous with Religion]—in so far as it expresses . . . the being and life common to you and to the All." (P. 45.) Religion is the feeling produced upon us by any particular object, i. e., by any part of the Universe, *when it is received, felt, as a part of the whole*, "not as limited and in opposition to other

¹ The quotations will be chiefly from the second of the *Speeches on Religion* ("The Nature of Religion"), as translated from the 2nd edition by John Oman, London, 1893.

things, but as an exhibition of the Infinite in our life. Anything beyond this, any effort to penetrate into the nature and substance of things is no longer religion, but seeks to be a science of some sort." (P. 49.) A little further he tries again to describe the kind of apprehension which determines the religious feeling: "The sum total of Religion is to feel that, in its highest unity, everything that stirs our emotions is one in feeling; to feel that aught single and particular is only possible by means of this unity; to feel, that is to say, that our being and living is a being and living in and through God." He adds, "but it is not necessary that the Deity should be presented as also one distinct object." (P. 50.) Within the limits set in the preceding quotations, i. e., provided the feeling stirred by the particular object reveals the Unity of the Whole, every feeling is Religion. This, then, is clearly affirmed in the discourse on the "Nature of Religion," that it is the action of particular things upon us which underlies all religious emotions; we cannot "have" Religion unless it be through the influence exercised upon us by concrete, particular things.

In the *Christliche Glaubenslehre* Schleiermacher gives a definition of Religion differing in its wording from the one we have found in the *Reden*. It is in this later work that he reached the formula that has had so much success "the essence of religion consists in the feeling of an absolute dependence." To render fully his thought, the words "upon the Universe," or "upon God," should be added. This is simply an addition, not a negation, or even an alteration, of the earlier statement. He had said "Religion is feeling," it is the feeling generated in us by single experiences when viewed as intimations of the Whole of which they are parts. But he had not said what kind of feeling would be produced under these circumstances. In the *Glaubenslehre* he goes further and states that the intuition of the Whole through the presentation of a particular object produces a feeling of dependence. It will be a feeling of dependence because in these experiences man realises that the reaction called forth by the particular object is utterly insufficient, since at bottom it is a reaction by which he tries to meet, not the particular thing which has called it forth, but the Whole which it represents.

In his earlier writings Schleiermacher avoided the word "God" and was satisfied to use impersonal terms: the All, the Whole, the Universe, the Infinite. Later on the word God appeared and we find him making a distinction between the Universe and God which previously he does not seem to have had in mind. He distinguishes between the Whole as an aggregate of mutually conditioned parts of which we ourselves are one, and the Unity underneath this coherence which conditions all things and conditions our relations to the other parts of the Whole.

Schleiermacher agrees both with Max Müller and with Spencer in that (1) he finds the essence or the vital element of religion outside of morality, (2) he separates religion from knowledge of the nature of things. Moreover all three recognise the Mystery. They differ in that Schleiermacher finds the substance of religion in the *feeling* our dependence upon the Universe excites in us, while Spencer

considers the *recognition* of the Mystery the vital element. As to Max Müller he stands somewhere in the hazy between.

HENRY RUTGERS MARSHALL.¹

In passing to Marshall, we enter upon new ground. Schleiermacher, Max Müller, and Spencer, in spite of considerable differences, evince at bottom a family resemblance; Marshall's view shows another pedigree. It reflects the tendency of recent psychology to turn from ideas and feelings to the actions of which they are the antecedents or the consequents.

Considering religion objectively, he concludes that it consists in those special activities which imply restraint of individualism, and that these activities, or at least the general tendencies from which they spring, are instructive. "The restraint of individualistic impulses to racial ones (the suppression of our will to a higher will) seems to me to be of the very essence of religion: the belief in the Deity, as usually found, being from the psychological point of view an attachment to, rather than of the essence of, the religious feeling." (P. 329).²

Marshall's argument in support of the instructiveness of religion runs somewhat as follows: Religion is not, on the whole, advantageous to the individual; on the contrary it is in most cases clearly detrimental and would therefore not have remained as a factor in human societies if it was not advantageous to the race. As a matter of fact the religious activities are found on examination to be both detrimental to the individual and advantageous to the race. Now, the way in which practices of this description remain in general existence is through the survival of the fittest race. This implies the establishment of the practices, or at least of the tendencies, leading to them, as instinct.

It will appear in what precedes that Marshall includes under "Instinct" not only congenital activities *relatively definite*, as is commonly done, but also activities varying widely from each other. "The definiteness and the fixity of the actions is of very secondary moment, that which is important being the fact that there exists a biological end which determines the trend of these organised activities." It is only in this wider sense that religion may be called an instinct.

The theories put forth in *Instinct and Reason* concerning the nature and the function of religion are very interesting; they emphasise a side too much neglected, but they are not convincing. That religious activities are of value to the race, we may well believe, but that they are on the whole detrimental to the individual is by no means proven. This conclusion of our author seems the result of an insufficient investigation of religious life. A strong wish to put through a captivating

¹ *Instinct and Reason*. Macmillan, 1898.

² See, for comparison, Benjamin Kidd's *Social Evolution*, p. 103, and Hiram M. Stanley's paper "On the Psychology of Religion," in the *Psychological Review* for 1893.

theory may have closed his eyes to the many obvious facts which militate against his opinion. The facts upon which he places the emphasis, seclusion, vision, fasting, one side of prayer, one side of sacrifice, do not represent adequately religious life.

The instinctive nature of religion is by no means demonstrated in the long argumentation devoted to it. The whole matter turns, it seems to us, upon the meaning to be attached to the expression *the tendencies to the main drift* of the actions by which a particular biological end is realised. These tendencies alone and not the activities themselves, let us remember, need be instinctive in the opinion of the author. What the expression means is not very clear. In the only sense we can give it, every human activity whatsoever, and not only the religious one, may be said to be directed, in a way, by an instinctive tendency. If no more than this is meant, then, the statement that religion is instinctive is thoroughly commonplace and undoubtedly true.

DANIEL G. BRINTON.¹

"There is no belief or set of beliefs which constitute a religion. We are apt to suppose that every creed must teach a belief in a God, or Gods, in an immortal soul and in a divine government of the World. . . . No mistake could be greater. The religion which to-day counts the largest number of adherents, Buddhism, rejects every one of these items." (P. 28.)

After reviewing the principal theories of the origin of Religion he expresses his own opinion as follows: "The real explanation of the origin of religion is simple and universal. . . . It makes no difference whether we analyse the superstitions of the rudest savages, or the lofty utterances of John the Evangelist or of Spinoza the 'God-intoxicated philosopher'; we shall find one and the same postulate to the faith of all.

"This universal postulate, the psychic origin of all religious thought, is the recognition, or, if you please, the assumption, *that conscious volition is the ultimate source of all Force*. It is the belief that behind the sensuous, phenomenal world, distinct from it, giving it form, existence and activity, lies the ultimate, invisible, immeasurable power of Mind, of conscious Will, of Intelligence, analogous in some way to our own; and,—mark this essential corollary,—*that man is in communication with it*.

"What the highest religions thus assume was likewise the foundation of the earliest and most primitive cults. The one universal trait amid their endless forms of expression was the unalterable faith in Mind, in the super-sensuous, as the ultimate source of all force, all life, all being." (Pp. 47 and 48.)

¹ The quotations are taken from "Religions of Primitive Peoples," the *American Lectures on the History of Religions* for 1896-1897. Putnam Sons. 1897.

In his earlier book, *The Religious Sentiment*, p. 79, Brinton gave the following definition: "Expectant attention directed toward an event not under known control, with a concomitant idea of Cause and Power."

HEGEL defines religion as "The knowledge possessed by the finite mind of its nature as absolute mind."¹

In the opening pages of the *Philosophy of Religion* he describes religion in an eloquent passage: "It is the realm where all enigmatical problems of the world are solved; where all contradictions of deep, musing thoughts are unveiled and all pangs of feeling soothed. . . . The whole manifold of human relations, activities, joys, everything that man values and esteems, wherein he seeks his happiness, his glory, and his pride—all find their final middle point in religion, in the thought, consciousness and feeling of God. God is therefore the beginning and the end of everything. . . . By means of religion man is placed in relation to this center, in which all his other relations converge, and is elevated to the realm of highest freedom, which is its own end and aim. This relation of freedom on the side of feeling is joy which we call beatitude; . . . on the side of activity its sole office is to manifest the honor and to reveal the glory of God, so that man in this relation is no longer chiefly concerned with himself, his own interests and vanity, but rather with the absolute end and aim."¹

KANT. "Religion is (considered subjectively) the recognition of all our duties as divine commands."—*Die Religion innerhalb der Grenzen der blossen Vernunft*, Viertes Stück, erster Theil.

COMENIUS. "By religion we understand that inner veneration by which the mind of man attaches and binds itself to the supreme Godhead."—*Great Didactic* Keatings tr., p. 190.

HOBSES. "The natural seed of religion lies in these four things: the fear of spirits, ignorance of secondary causes, the conciliation of those fears and the assumption of accidents for omens."—*Leviathan, De Homine*.

HUME. "We may conclude therefore that in all nations the first ideas of religion arose not from a contemplation of the works of nature, but from a concern with regard to the events of life and fears which actuate the human mind."—*The Natural History of Religions*.

HERBART. "Sympathy with the universal dependence of men is the essential natural principle of all religion."—*Science of Education*, Felkin's tr., p. 171.

COMTE. "Religion, then, consists in regulating each one's individual nature, and forms the rallying point for all the separate individuals."

"To constitute a complete and durable harmony what is wanted is really to bind together man's inner nature by love and then to bind the man to the outer world by faith. Such, generally stated, is the necessary participation of the heart to the synthetical state, or unity, of the individual or the society."—*Catechism of Positive Religion*, pp. 46 and 51.

MARTINEAU understands by religion "the belief in an ever-living God, that is, in a Divine Mind and Will ruling the Universe and holding moral relations with mankind."—Introduction to *A Study of Religion*.

¹ Quoted from Sterrett's *Studies in Hegel's Philosophy of Religion*.

RÉVILLE. "Religion rests above all upon the need of man to realise an harmonious synthesis between his destiny and the opposing influences he meets in the world."—*La religion des peuples non-civilisés*, Vol. I., p. 120.

ROMANES. "The distinguishing features of any theory which can properly be termed a religion is that it should refer to the ultimate source or sources of things; that it should suppose this source to be an objective, intelligent, and personal nature. . . . To speak of the Religion of the Unknowable, the Religion of Cosmism, the Religion of Humanity and so forth, where the personality of the First Cause is not recognised, is as unmeaning as it would be to speak of the love of a triangle, or the rationality of the equator.

"Religion is a department of thought having for its object a self-conscious and intelligent Being."—*Thoughts on Religion*.

PFEIDERER. "In the religious consciousness all sides of the whole personality participate. Of course we must recognise that knowing and willing are here not ends in themselves as in science and morality, but rather subordinated to feeling as the real centre of religious consciousness. . . . This is not a simple feeling but a combination of feelings of freedom and dependence."—"The Notion and Problem of the Philosophy of Religion," *Philos. Rev.*, Jan., 1893.

EDWARD CAIRD. "Without as yet attempting to define religion . . . we may go as far as to say that a man's religion is the expression of his ultimate attitude to the Universe, the summed-up meaning and purport of his whole consciousness of things."—*Evolution of Religion*, Vol. I., p. 30.

D. G. THOMPSON means by religion "the aggregate of those sentiments in the human mind arising in connexion with the relations assumed to subsist between the order of nature (inclusive of the observer) and a postulated supernatural."—*The Religious Sentiment of the Human Mind*.

JEVONS. "Religion as a form of thought is the perception of the invisible things of Him through the things that are made."—*History of Religion*.

BENJAMIN KIDD. "A religion is a form of belief providing an ultra-rational sanction for that large class of conduct in the individual where his interests and the interests of the social organism are antagonistic and by which the former are rendered subordinate to the latter in the general interests of the evolution which the race is undergoing."—*Social Evolution*, p. 103.

BRADLEY. "But, on the other side, we have found that the essence of religion is not knowledge. And this certainly does not mean that its essence consists barely in feeling. Religion is rather the attempt to express the complete reality of goodness through every aspect of our being. And, so far as it goes, it is at once something more, and therefore something higher, than philosophy."—*Appearance and Reality*, p. 453.

WM. JAMES. "A man's religious faith (whatever more special items of doctrine it may involve) means for me essentially his faith in the existence of an unseen order of some kind in which the riddles of the natural order may be found explained."—"Is Life Worth Living?" in *The Will to Believe and Other Essays*.

UPTON. "It is the felt relationship in which the finite self-consciousness stands to the immanent and universal ground of all being, which constitutes religion."—"The Basis of Religious Belief," *Hibbert Lectures* for 1893.

A. SABATIER. "That which we call religion in a man is the sentiment of the

relation in which he stands and wants to stand to the universal principle upon which he knows himself to be dependent, and to the universe itself of which he finds himself a part.

"A filial feeling towards God and a fraternal feeling towards man is what makes the Christian."—*Esquisse d'une philosophie de la religion d'après la psychologie et l'histoire*, pp. 183 and 185.

WM. RALPH INGE. "Our consciousness of the beyond is, I say, the raw material of all religion."—"Christian Mysticism," *Bampton Lectures for 1899*.

HIRAM M. STANLEY. "We take it then that religion must be biologically defined as a specific mode of reaction to high superiorities of environment, or psychologically as a perception of a highly superior being, leading to a peculiar mode of emotion and will toward that being, and thus securing the most advantageous action. . . . The reverential and worshipful emotion spent is the essence of religion, and wherever this is found among the lowest animals, or the highest specimens of mankind, there is religion."—"On the Psychology of Religion," *Psychol. Rev.*, 1898, p. 258.

RENAN. "My Religion is now as ever the progress of reason, in other words the progress of science."—Preface to *The Future of Science*.

J. H. LEUBA.

BRYN MAWR, PA.

THE RECENT DEVELOPMENT OF METHOD IN THEORETICAL PHYSICS.¹

IN former centuries, the progress of science, as exhibited in the labors of its most gifted representatives, though continuous in its movement, was relatively slow, like the growth of an ancient Continental city to which industrious and enterprising citizens have kept constantly adding new and improved structures. The present century, on the other hand, with its steam and its telegraph, has impressed the stamp of its own nervous and restless activity upon the progress of science; so that the development of the physical sciences in recent times resembles rather the growth of a modern American city which has sprung in a few decades from an insignificant village to a great metropolis.

Leibnitz has been correctly described as the last man who was able to compass the entire knowledge of his age. True, there have not been wanting in recent times men who have evoked astonishment by the prodigious extent of their knowledge. I have but to mention here the name of Helmholtz, who was master alike of four different provinces of knowledge,—philosophy, mathematics, physics, and physiology. Yet even these four sciences, broad as is their extent, were limited and more or less related provinces only, of the grand total of human knowledge, which is immeasurably greater.

The consequence of this stupendous and rapid augmentation

¹ From the proceedings of the seventy-first congress of the *Gesellschaft deutscher Naturforscher und Aerzte*, held at Munich, September 17-23, 1899. Translated from the German by Thomas J. McCormack.

of our positive knowledge has been an exceedingly minute division of labor in science, approaching in intricacy the systems of some of our great modern factories. Unquestionably such a division of labor is favorable in an eminent degree, nay, even indispensable, to the rapid development of science; but it is no less certain that it carries with it the possibility of grave dangers. There is wanting to it that broad view of the whole which is an indispensable requisite of ideal scientific research, the aim of which is the discovery of new points of view, or of new combinations of old points of view. In order to offset this drawback as far as possible, it is unquestionably of advantage if some individual who is engaged in such specialised scientific work endeavors from time to time to present to the scientific public at large a survey of the development of the special provinces of knowledge in which he is working.

But such an undertaking is attended with grave difficulties. The infinitely extended chain of inferential or experimental investigation which has some definite result for its ultimate goal, does not lend itself to ready and synoptic comprehension save for persons who have made the pursuit of such trains of thought the labor of a lifetime. Then again, for the purpose of abbreviating phraseology and facilitating breadth of view, numerous strange and learned words have been introduced into science. And while on the one hand it would be out of place to exhaust the patience of one's readers by explaining all these new ideas before coming to one's real subject, on the other hand intelligibility is impossible without some account of them. Moreover, popular exposition cannot in itself be regarded as the main object; to make it such would unfailingly result in the emasculation of that rigor of deductive reasoning and in the abandonment of that exactitude which has justly become the distinguishing attribute and the pride of physical science. In selecting, therefore, for my present theme a popular presentation of the modes of development of theoretical physics in recent times, I am thoroughly conscious of the fact that my purpose is not attainable in that perfection in which my imagination has pictured it, and that I shall be able to offer but a rough outline of the most essential points only; whilst I shall also necessarily

afford frequent occasion for complaint in presenting many things which are perfectly known to all, but which I am obliged to touch upon to render my expositions complete.

* * *

The principal cause of the rapid development of physical science in recent times is unquestionably the discovery and perfection of suitable methods of investigation. In the experimental field, the methods are frequently quite automatic in their action, and the inquirer in a measure is merely obliged to furnish new material for his research, as a weaver supplies fresh thread for his loom. Thus, for example, the physicist merely investigates different new substances with respect to their tenacity, their electric resistance, etc., and then repeats his experimental work at the temperature of liquid hydrogen and again at that of Moissan's electric furnace. And the same statement holds true with regard to much of the work of chemistry. Of course, there is always a goodly measure of acumen still essential for determining the precise experimental conditions in which the investigations shall be successful.

The case is not so simple with the methods of theoretical physics; yet here too we may speak in a sense of automatic procedure.

The high importance attaching to correct method explains why men have reasoned not only concerning things, but also concerning the method of our reasoning concerning things. Thus arose the so-called theory of knowledge which, despite certain lingering traditions of the ancient and now tabooed metaphysics, is of the highest significance for science.

The development of scientific method is, so to speak, the skeleton which carries the development of the entire body of science. I shall, therefore, pay principal attention in the following pages to the development of methods, and shall make use of the actual results of science merely for the purpose of investigating these methods. The results are in their very nature better known and more easy to comprehend, whereas their methodological relationship is precisely what is in most need of investigation.

It is particularly fascinating to proceed from the retrospect of history to the outlook upon the scientific development of the future,

which is denied to us by the shortness of human life; but on this point I shall confess at the outset that I have only negative considerations to offer. I shall not be so presumptuous as even to think of lifting the veil that envelops the future; on the contrary, I shall adduce considerations which will serve rather as admonitions against positive and hasty conjectures concerning the future development of science.

* * *

If we scrutinise the development of theory closely, it will be immediately apparent that its course has been by no means so continuous as we might be inclined to believe, but rather that it is full of gaps and has not taken place, to appearances at least, along the simplest and most logical paths. Certain methods have frequently yielded the most beautiful results, and many persons have been tempted to believe that the development of science to the end of all time would consist in the systematic and unremitting application of them. But suddenly they begin to show indications of impotency, and all efforts are then bent upon discovering new and antagonistic methods. Then there usually arises a conflict between the adherents of the old method and those of the new. The point of view of the former is characterised by its opponent as antiquated and obsolete; whilst its upholders in their turn look down with scorn upon the innovators as perverters of true classical science.

This is a process, moreover, which is by no means restricted to theoretical physics, but to all appearances recurs in the history of every field of intellectual activity. Many doubtless believed in the days of Lessing, Schiller, and Goethe that the dramatic literature of the future was contained in all its possible manifestations potentially in the ideal poetical methods cultivated by these great masters; whereas to-day totally different methods of dramatic writing are employed, and the correct method has possibly not yet been reached.

In like manner in art the Impressionists and Secessionists stand arrayed against the old schools of painting, and the Wagnerian school of music against the schools of the ancient classical mas-

ters. There is accordingly no occasion for surprise that theoretical physics does not form an exception to this general law.

* * *

Building upon the labors of a number of gifted predecessors, Galileo and Newton erected a system which may be characterised as the real beginning of theoretical physics. Newton added to this system his great theory of the motion of the celestial bodies. He considered each of these bodies as a mathematical point, as, indeed, each of the fixed stars appears to be to the unaided eye. Between each two of these points a force of attraction acting inversely as the square of the distance and in the direction of the line of junction was conceived to operate. Assuming a like force as operative between every two of the material particles of bodies generally and applying the laws of motion which he had derived from the observation of terrestrial objects, Newton succeeded in deducing from one and the same law the motions of all the celestial bodies, the phenomena of gravitation, the tides, etc.

In consideration of Newton's marvellous success, the endeavors of his followers were bent toward explaining all the other phenomena of nature exclusively by Newton's method, under appropriate modifications and extensions. Starting from an ancient hypothesis which dates back to Democritus, they conceived bodies as aggregates of great numbers of material points called atoms. Between each two of these material points, there was supposed to act, besides the Newtonian attraction, a supplementary force, which at certain distances repelled and at others attracted, according as the requirements of explanation demanded.

The so-called principle of living forces was a contemporary contribution of mathematical inquiry. Every time that work is performed, that is to say, every time the point of application of a force is displaced through a certain distance in the direction of the force, a definite quantity of motion is supposedly produced, a quantity which is measured by a mathematical expression to which the name of *living force* was given. Exactly this quantity of motion does in reality make its appearance when the force acts uniformly upon all the particles of a body, as in the case of free descent,

but it makes its appearance in less amount when the forces act upon a few particles only and not upon the remainder, as in the case of friction and impact. In all occurrences of the last-named kind heat is generated instead. The hypothesis was then formed that heat, which prior to this had been regarded as a substance, was nothing less than an irregular relative motion of the smallest particles of bodies with respect to one another,—a motion which cannot be directly seen, since the particles in question are themselves invisible, but which is communicated to the minute material constituents of our nerves and evokes thus the sensation of heat.

The truth of the theory that the heat generated is in every case of necessity exactly proportional to the living force which is destroyed, a theory which was termed the principle of the equivalence of living force and heat, was in the outcome confirmed. Then the additional supposition was made that in solid bodies each and every particle oscillates about a definite position of equilibrium and that the configuration of these positions of equilibrium was determinative of the solid conformation of the body. In the case of liquids, these molecular movements were so brisk that the particles slipped by one another; evaporation was produced by the complete separation of the particles from the superficies of bodies, so that in gases and vapors the particles sped along on their paths mostly in rectilinear directions like bullets shot from a gun. Thus, for example, was explained with facility the occurrence of bodies in their ordinary three aggregate states, as were likewise many facts of physics and chemistry. It was a direct consequence of many of the properties of gases that their molecules could not possibly be material points; it was therefore supposed that they were more complicated aggregates of such points, possibly enveloped by integuments of ether.

In addition to the ponderable atoms constituting bodies, there was assumed the existence of a second substance composed of atoms much more minute,—namely, the luminiferous ether, by the transversal undulations of which were explained nearly all the phenomena of light which Newton had formerly ascribed to the emanation of specific luminous particles. There were still a few

difficult problems remaining, like that of the utter absence of longitudinal waves in the luminous ether,—a form of undulatory motion which not only occurs in all ponderable bodies, but actually plays the leading part in their existence.

Our knowledge of the facts of electricity and magnetism were enormously extended by Galvani, Volta, Oersted, Ampère, and others, and had been advanced by Faraday to virtual completion. With comparatively meager resources the latter inquirer had unearthed so marvellous a plenitude of facts that it long seemed as if the task of the future would be entirely restricted to the elucidation and application of his discoveries.

Specific electric and magnetic fluids had long been conceived as the effective causes of the phenomena of electromagnetism. Ampère succeeded in explaining the phenomena of magnetism by means of molecular electric currents, thus rendering the assumption of magnetic fluids superfluous, while Wilhelm Weber so completed the theory of electric fluids as to simplify greatly the explanation of all electromagnetic phenomena hitherto known. To this end, he conceived the electric fluids to be composed of minute particles, precisely as were ponderable bodies and the luminiferous ether; and between these electric particles he conceived forces to act precisely similar to those which were operative between the particles of other substances, with the sole modification, in itself unessential, that the forces acting between every two electric particles were also determined by the relative velocities and accelerations.

Whereas thus in the preceding periods inquirers had assumed, in addition to sensible matter, a caloriferous substance, a luminiferous substance, two magnetic and two electric fluids, etc., now ponderable matter, the luminiferous ether, and the electric fluids were found to suffice. Each of these substances was conceived to be composed of atoms, and the peculiar task of physics for all future time appeared to be definitively restricted to determining the law of operation of the *actio in distans* obtaining between each pair of atoms and subsequently to integrating under the appurtenant initial

conditions the equations which flowed from these various interactions.

* * *

This was the state of development of theoretical physics when I began my studies. What marvellous changes have since been wrought! When I look back over the manifold developments and transformations that have taken place, I seem to myself like a veteran on the field of science; nay, I might even say that I alone am left of those who embraced the old doctrines heart and soul; at least I am the only one who is still sturdily battling for them. I look upon it, in fact, as the mission of my life to do my utmost, by clear, logical, and systematic exposition, to render the permanent and useful acquisitions of the old classical theory so secure that they shall not have to be discovered a second time,—a phenomenon which is not of isolated occurrence in the history of science.

I appear before you, therefore, as a reactionary and belated thinker, as a zealous champion of the old classical doctrines as opposed to the new. Nevertheless, I am convinced that I am no narrow-minded partisan, blind to the excellencies of the new theories, to which justice shall be rendered in the following pages as far as lies in my power; for I am only too well aware that like others I also see the things of this world as colored by the glasses of my own subjectivity.

* * *

The first onslaught upon the scientific system above described was directed toward its weakest point; namely, Weber's theory of electrodynamics. This was in a sense the flower of the intellectual labors of this gifted inquirer, who won undying renown by his numerous theoretical and experimental researches in the field of electrodynamic measurement. Yet, despite its great ingenuity and mathematical refinement, Weber's theory bears so distinctly the stamp of artificiality that but a few enthusiastic adherents doubtless ever reposed implicit confidence in it. Maxwell, an unqualified admirer of the labors of Weber, led the assault.

The labors of Maxwell enter into consideration here under two

points of view: first, under their epistemological aspect and secondly under their purely physical aspect. As to the first point of view, Maxwell distinctly indicates the danger involved in holding a theory of nature to be absolutely and exclusively correct because many consequences that follow deductively from it may happen to be confirmed by experience. He shows by numerous instances that one and the same group of phenomena frequently admits of explanation in two totally different ways; each method of explanation representing the facts as well as the other. It is not until new and hitherto unknown phenomena are adduced that the advantages of the one theory over the other are apparent, and even then the victorious theory may, on the discovery of further fresh facts, have to yield to a third theory.

Whilst the creators of the old classical physics, and far more so their successors, imagined that they had revealed the intimate nature of phenomena by their explanations, Maxwell claimed no more for his theory than its being a mere constructive representation of nature, or "mechanical analogy" as he terms it, enabling the imagination to depict in the simplest manner possible at the time all the phenomena concerned. We shall see what a beneficial effect this attitude of Maxwell's had on the further development of his theory. The victory for his theoretical ideas was immediately secured by their practical consequences.

We saw that all known electromagnetic phenomena had actually been explained by Weber's theory, which supposed electricity to consist of particles which acted directly upon one another at any distance without any intermediate agency. Stimulated by the ideas of Faraday, Maxwell constructed a theory which proceeded from a directly opposite point of view. According to his theory, every electric or magnetic body acted only upon the immediately adjacent particles of a medium filling all space, which particles acted in turn upon the next adjacent particles of the medium, until the action had been communicated to the neighboring body.

Known phenomena were explained as well by the one theory as by the other; but Maxwell's theory extended farther than the old one. According to his view, as soon as electric displacements

could be generated in sufficiently rapid succession, there would necessarily be produced in the medium, a wave motion which would exactly obey the laws governing the undulations of light. Maxwell accordingly surmised that rapid electric disturbances always took place in the particles of luminous bodies and that the vibrations thus evoked in the medium were what we know as light. The medium which is the vehicle of electromagnetic action is thus recognised as identical with the old luminiferous ether, and we may consequently give to it the same name, although it must necessarily possess many other properties in order to serve as the vehicle of electromagnetism.

The reason that no vibrations of this character were observed in the early experiments with electricity may perhaps be rendered plain by the following illustrations: Place the palm of your hand against a pendulum at rest; raise the pendulum slowly by gently pressing against it, and then let the hand fall slowly back in the opposite direction, finally withdrawing it altogether. The pendulum will follow the hand and execute a half vibration, but it will not swing up on the other side because the velocity imparted to it is too slight. The following may also serve as an illustration: Theory assumes that on plucking a stretched string, a point of the string is pulled out of the position of equilibrium, and then suddenly the entire string is left to itself. I did not believe this as a young student, but thought that the person plucking the string ought to impart to it an additional impulse, for in my first experiment in pushing the string aside with my finger and then withdrawing it in the direction in which the string would have vibrated, the latter emitted no sound. I did not see, that compared with the great velocity of oscillation of the string the movement of my finger was exceedingly slow, and so checked the movement of the string.

In like manner, in the old experiments the electrical oscillations were in all cases performed too slowly as compared with the enormous velocity of propagation of electricity. After many difficult preliminary experiments, the leading ideas of which he has himself set forth in the frankest manner, Hertz found certain experimental conditions in which electric states could be periodically

altered so rapidly that measurable waves were produced. Like all the productions of genius, their simplicity is remarkable, yet for reasons which are quite apparent I cannot enter here upon their detailed consideration. The waves which Hertz produced by electric discharges differ, as Maxwell had predicted, in no qualitative respect whatever from waves of light; but quantitatively the difference is prodigious.

As pitch in sound, so color in light is determined by the rapidity of the vibrations. In visible light about four hundred million million vibrations a second in the outermost red, and eight hundred million million in the outermost violet, are the extreme limits of the rates of vibration. For a long time it had been known that there were ether-waves of like nature having rates of vibration some twenty times less than those in the outermost red and some three times as great as those in the outermost violet. These are invisible to the eye, but the first or so-called ultra-red are perceptible by their thermal effects and the latter or the so-called ultra-violet by their chemical and phosphorescent effects. In the waves produced by Hertz by actual discharges, there took place in a second not more than about one thousand million vibrations, and Hertz's successors produced waves having a hundred times as many vibrations per second.

It stands to reason that vibrations that take place so slowly as compared with luminous vibrations cannot be seen directly by the eye. Hertz demonstrated their existence by means of microscopic sparks generated by them in appropriately-shaped conductors at great distances. These conductors may therefore be correctly termed "eyes" for Hertz's vibrations. With these means, Hertz confirmed Maxwell's theory in its minutest details, and although it was attempted to explain electric vibrations by the theory of action at a distance, the superiority of Maxwell's theory was soon universally admitted; indeed, the pendulum swung so far to the other side that the extremists ultimately came to speak of the incompetency of all the conceptions of the old classical theory of physics. But of this later. We shall first stop to speak a little more at length of these brilliant discoveries.

Of the various ether-waves that had been discovered before Hertz's time it was known that some passed more easily through one class of substances and others more easily through another. Thus, an aqueous solution of alum permits the passage of all visible rays but of only a few ultra-red rays; these ultra-red rays, on the other hand, penetrate solutions of iodine in carbon disulphide, which are absolutely impervious to visible light. Hertz's waves pass through almost all bodies with the exception of metals and electrolytes. Accordingly, when Marconi produced very short Hertzian waves in one place and translated them into the Morse alphabet at another several miles distant by means of an instrument which was but a modification of the apparatus which we call the "eye" for Hertz's waves, what he did was nothing more than to construct an ordinary optical telegraph; with this difference, that instead of employing waves of five hundred million million vibrations per second, he employed waves having but about one hundred thousand million vibrations in a second. The advantage of the last-named waves is that they pass with very slight diminution of power through fogs and even through masses of rocks. But they would no more be able to pass through a mountain of solid metal or through a fog of mercury globules than visible light would through an ordinary mountain or fog.

The variety of the forms of radiant energy known to us was still further enriched by the justly celebrated discovery of Roentgen's rays. These pass through all bodies, including metals, although in the latter case, as well as in that of metaliferous bodies and calcareous bones, their power is considerably diminished. The phenomena which had been demonstrated in connexion with all former kinds of radiant energy, namely, polarisation, interference, and refraction, were not observed in connexion with Roentgen's rays. If these were actually incapable of polarisation they would, if they were waves at all, necessarily be longitudinal. But the possibility even exists that they are incapable also of interference, and hence are not waves at all, which is the reason for our caution in speaking of Roentgen *rays* and not of Roentgen *waves*. If ever a body were discovered capable of polarising them, we should have

reason to regard them as qualitatively identical with light, but even in that event they would have to have a very much shorter period of vibration than even the outermost ultra-violet rays, or might possibly be made up, as some physicists are inclined to believe, of impulses following one another in rapid succession.

In view of this prodigious variety of form which rays exhibit, we might be inclined to pick a quarrel with our creator for having made our eye sensitive to so small a portion only of this vast domain; but as in all such cases we should do so unjustly, for never is more than a tiny portion of the great All of nature revealed directly to man, though in compensation his intellect has been rendered competent to acquire the knowledge of the rest by suitable effort.

If the Roentgen waves really were longitudinal waves of the luminiferous ether, which their discoverer was at first quite disposed to believe, and which has so far not been disproved by a single fact, we should be confronted with an interesting but by no means isolated incident in the history of science. The classical theoretical physics long ago perfected its views regarding the composition of the luminiferous ether. One thing only was wanting, as it was believed, for irrevocably confirming its correctness, namely, the presence of longitudinal waves in the ether. But these could not be made to appear. Now, after it has been proved that the luminiferous ether must have a substantially different constitution, since it is also the vehicle of electric and magnetic action, now I say, after the old theory of the constitution of the luminiferous ether has been exploded, we are on our hypothesis brought, *post festum* as it were, to the very verge of the long-desired confirmation, the discovery of the existence of longitudinal waves in the ether.

The case of Weber's theory of electrodynamics was similar. This theory rested, as we saw, upon the assumption that the action of electric charges depends on their relative motion, and just at the moment when the insufficiency of Weber's theory was definitively demonstrated Rowland found in Helmholtz's laboratory by direct experiment that moving charges of electricity act differently from

charges at rest. Formerly, scientists would have been inclined to accept this experimental result as a direct proof of the correctness of Weber's theory, but to-day it is known that it is not an *experimētum crucis*, but that it follows also from Maxwell's theory.

Furthermore, it follows from a modification of Weber's theory that not only the conductors carrying the currents but also the currents within the conductors must be deflected by the magnet. This phenomenon also, after having been long sought in vain, was discovered by the American physicist Hall at a time when the adherents of Weber's theory had suffered so many decisive defeats that even the thought of triumph over the new discovery was impossible.

Such things demonstrate the great caution that is necessary when one is tempted to look upon the confirmation of a consequence of a theory as a proof of its unconditional correctness. According to Maxwell's view, our mental representations, which have been made to conform to nature in certain instances, prove often to be automatically in accord with nature at many other points; but it does not necessarily follow from this that they are in accord with her at all points. The same considerations also go to show that even a wrong theory may prove of value by stimulating inquirers to new experiments.

It was demonstrated by the above-mentioned discoveries of Hertz, Roentgen, Rowland, and Hall, that Faraday had after all left something for his successors to discover. To these may be added a number of other recent discoveries, of which we shall mention here only the phenomenon of Zeeman with respect to the action of magnetism on the emission of light and the corresponding phenomenon of the action of magnetism on the absorption of light. All these phenomena, of which many were actually sought after by Faraday, could not have possibly been reached by the means at that investigator's disposal. Genius has frequently accomplished wonderful results with insignificant resources, but it is no less true that the human mind could never have achieved some of its noblest conquests save for the marvellous perfection to which physical apparatus and physical experimentation have been advanced in recent times.

The majority of the novel phenomena here described have been investigated as yet only superficially. The study of their details and of their relations to one another and to other known phenomena, their elaboration in the mechanical loom of physics, if I might hazard the phrase, opens for future generations a field of research which is apparently immeasurable. The many practical results which have already been obtained from them, at the very outset, as it were, (for example, the X-ray photography, wireless telegraphy, and radiotherapy,) give some inkling of the vast wealth of practical consequences which will be forthcoming upon a thorough-going exploitation of the details. But theory has been hard put to it by the new facts. The intellectual tranquillity into which she lapsed from her belief that she had comprehended everything has been rudely shaken, and no attempt has yet been successful to bring the new phenomena under so simple and satisfactory a point of view as the old. In fact, everything is still in a state of vacillation and fermentation.

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This state of confusion was augmented by the combined influence of several other factors. In the first place are to be mentioned certain philosophical criticisms of the foundations of mechanics, which have been most distinctly formulated by Kirchhoff. The dualistic notions of force and matter had been unhesitatingly adopted by the old mechanics. Force was considered as an independent agent existing by the side of matter and the cause of all motion. Nay, the dispute even arose as to whether force existed at all in the sense that matter did, whether it was not rather a property of matter, or contrariwise whether matter should not be regarded as a product of force.

Kirchhoff was far from desiring to answer these questions. Doubtless he looked upon the entire method of formulating the problem as futile and inept. Yet in order to be dispensed from expressing his opinion upon the value of such metaphysical inquiries he declared it his purpose to eschew absolutely these obscure notions and to confine the task of mechanics to the simplest and most

unequivocal possible description of the motions of bodies, without consideration of their metaphysical origin. In his *Mechanics*, therefore, he speaks only of material points and of the mathematical expressions by which the laws of their motion are formulated; the notion of force is omitted altogether. Napoleon once exclaimed in the vault of the Capuchins at Vienna: "All is vanity save force;" but Kirchhoff in a single page of printed matter absolutely eliminated force from nature, putting to shame even that German professor of whom Karl Moor relates that despite his physical impotency he had the audacity to treat of the nature of force yet not to destroy it.

Kirchhoff afterwards reintroduced the word force, but only as an abbreviated designation for certain algebraic expressions which constantly occur in the description of motion, and not as a metaphysical notion. The attempt was afterwards repeatedly made to enhance the significance of this word, especially with reference to the analogy afforded by the feeling of muscular effort which is so familiar to man, but the old obscure formulations and conceptions will doubtless never recur again in science.

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It was not Kirchhoff's purpose to alter in any way the subject-matter of the old classical mechanics; his reformation was a purely formal one. Hertz went much farther; and while nearly all subsequent authors have closely followed Kirchhoff's mode of exposition, sometimes imitating, unfortunately, his phraseology rather than his spirit, no such destiny has been allotted to Hertz's ideas. I have frequently heard Hertz's mechanics highly praised, but so far I have seen no one treading in the paths which he marked out.

To my knowledge, attention has never been called to the fact that a characteristic conception of Kirchhoff's mechanics, pushed to its last consequences, leads directly to the ideas of Hertz. Kirchhoff limits his definition of the most important concept of mechanics, that of mass, altogether to the case where arbitrary equations of condition exist between the material points. In this case the necessity of the factor designated by him as mass is clearly

seen. In the remaining cases, where the motion of the material points is not restricted by equations of condition, as in the old effects produced by forces, (for example, in the theory of elasticity, in aeromechanics, etc.,) Kirchhoff's concept of mass is intangible and the consequent obscurity is entirely removed only by excluding the last-mentioned cases.

This Hertz did. The most important forces of the old mechanics were forces acting directly at a distance between every two material particles. The question of the metaphysical cause of this action at a distance Kirchhoff abolished from mechanics; but he admitted motions which took place exactly as if these forces were in existence. Now, as we have seen, the conviction prevails to-day that electric and mechanical effects are transmitted by the agency of a medium. There remains thus naught but molecular forces and gravitation, which last even its discoverer Newton assumed to be probably due to the action of a medium. The molecular forces may approximately be replaced in solid bodies by the condition of invariability of form, and in liquid bodies by the invariability of volume. And while no successful attempt has as yet been made to replace elasticity, the expansive force of compressible liquids, chemical forces and forces of crystallisation, by like conditions; yet Hertz was doubtless convinced that such efforts would ultimately be crowned with success, and advancing beyond Kirchhoff he rejected even motions which took place as if the old forces existed, admitting only motions for which such conditions obtained as complied with certain formal mathematical definitions which he laid down. The only other principle which he employs for the construction of his mechanics is a law of motion which represents a special case of Gauss's principle of least constraint.

In sum, Kirchhoff merely interdicted inquiry as to the *causes* of the motions that had formerly been ascribed to forces acting at a distance, while Hertz abolished these motions themselves and sought to explain forces by equations of condition, thus directly inverting the method that had formerly prevailed of explaining the conditions of motion by forces. Hertz, therefore, made a far more serious attempt than Kirchhoff to conquer the difficulties inhering

in the concept of force. And he created in so doing a remarkably simple system of mechanics, which flows from very few principles, alike logical and natural in their character. Unfortunately, at the very moment of its enunciation, his lips were sealed forever in death, and the thousands of questions which certainly not I alone would fain have directed to him for enlightenment, must remain unanswered.

It will be understood from what has been said that certain phenomena, such as the free movement of rigid systems, follow readily from Hertz's theory. For other phenomena Hertz is obliged to assume the existence of invisible masses. The motions of these invisible masses determine by their interposition the motions of the visible masses, rendering the explanation of their laws of motion possible; they are consequently the counterparts of the invisible medium that produces electromechanic and gravitational phenomena. But what shape are these unknown elemental masses to take in our minds? And is it always possible for us to reach our goal by their agency? It is not permissible to assign to them the structural composition of the old media or even that of the luminiferous ether of Maxwell, for the reason that in all these media the precise forces are supposed to act which Hertz excluded.

Even in the very simplest mechanical problems the systems of invisible masses required by Hertz's theory are disproportionately intricate; and I am consequently inclined to attribute to this theory a purely scholastic value only.

Hertz's mechanics appears to me, therefore, more in the nature of a program for the distant future. If we should ever be successful in explaining in a simple manner all the phenomena of nature by such invisible motions as Hertz has described, then the old mechanics would be displaced by Hertz's system. But until that time comes the old system is the only one which is qualified to explain all the phenomena lucidly and satisfactorily without recourse to agents which are not only concealed from our sight but are also absolutely beyond our range of conception.

In his book on mechanics Hertz gave in a sense the finishing touch not only to the mathematico-physical ideas of Kirchhoff, but

also to the epistemology of Maxwell. Maxwell termed the hypothesis of Weber a *real* physical theory, meaning that its author claimed for it objective validity, whereas he ascribed to his own performance merely the value of constructive representations of phenomena. Starting from this point, Hertz impresses very distinctly upon the minds of physicists a principle with which philosophers had doubtless long been familiar, that no theory represents something absolutely objective, something absolutely coincident with nature, but that on the contrary every theory is a mental representation only of phenomena, and that it bears the same relation to the things it represents as a symbol does to the things it symbolises.

It follows from this that the object set us is not to discover an absolutely correct theory, but rather to light upon some constructive model which shall be as simple as the circumstances admit and represent the phenomena most adequately. In fact, it is not inconceivable that two quite different theories should exist which are equally simple and which accord equally well with the phenomena, and which therefore, although they are totally different, are yet equally correct. The assertion that a given theory is the only correct one is merely the expression of our subjective conviction that there is no other theory so simple and according so well with the facts.

Numerous questions which formerly appeared unfathomable are rendered nugatory from this point of view. How is it possible, it was said formerly, for a force to emanate from a material point, which is nothing but an intellectual entity? How can any combination of points furnish extension? And so on. Now we know that not only forces, but material points also, are mere mental representations. The points cannot possibly be equivalent to extended objects, but they may represent them to any degree of approximation we wish. The question whether matter is composed of atoms or is a continuum, is reduced to the far clearer question of whether the concept of an enormously large number of individual entities is calculated to furnish a more perfect mental representation of phenomena than the concept of a continuum.

We have been speaking in the main of mechanics. A revolution which affected the entire domain of physics, as distinguished from mechanics proper, was inaugurated in connexion with the rapid growth in import and scope of the principle of energy. We have already referred incidentally to this principle as one of those deductive consequences of the mechanical philosophy which had been verified by experience. According to this philosophy, energy is a perfectly familiar mathematical expression, absolutely devoid of mysticism and composed in quite definite manner of magnitudes which had been admitted earlier into the science (namely, mass, velocity, force, and distance); and since the philosophy in question regards heat, electricity, etc., as forms of motion, even while granting that these forms are as yet imperfectly known in character, it was inclined to see in the principle of energy merely an important confirmation of its conclusions.

Evidence of appreciation of this principle is met with, in fact, in the very infancy of mechanics. Leibnitz spoke of the substantial nature of force, by which he meant energy, in language which might have been used by the most recent champions of the doctrine. In inelastic impact, however, deformation, disruption of coherence and texture, the bending of springs, etc., are conceived as the products of living force; that heat is a form of energy Leibnitz has not the slightest inkling. As to the facts, therefore, Du-bois Reymond is entirely in the wrong when he again seeks to belittle Robert Mayer in his commemorative address on Helmholtz, and denies to Mayer the priority of the discovery of the equivalence of heat and mechanical work. As for Mayer, he was by no means an advocate of the view that heat was a motion of molecules; he looked upon heat rather as an entirely new form of energy and contended merely for its equivalence with mechanical energy. Even the physicists who espoused the molecular theory, foremost among them Clausius, sharply distinguished between the theorems which follow exclusively from this view (special thermodynamics) and those which are deducible from established facts of experience independently of any hypothesis regarding the nature of heat (general thermodynamics).

But special thermodynamics, after a succession of brilliant discoveries, was suddenly checked in its career by the difficulties encompassing the mathematical treatment of molecular motions. General thermodynamics, on the other hand, achieved remarkable results. It was found that the temperature determined the occasion and the proportion in which heat and work are transformed. The increment of heat added turned out to be the product of the so-called absolute temperature into the increment of a second function which after Clausius was termed entropy. From this were deduced, principally by Gibbs, new functions, like that which afterwards received the name of thermodynamic potential at constant temperature, constant pressure, etc., and by their assistance the most surprising results were reached in the most varied fields, as in chemistry, capillarity, etc.

It was found, further, that equations of analogous form obtained also for the transformation of other forms of energy, electric, magnetic, radiant, etc., into one another; and that in particular it was also possible to decompose each form of energy into two factors,—a procedure which was attended with no less success. This roused the enthusiasm of a certain group of inquirers, who styled themselves energeticians, to such a pitch that they immediately declared for absolute rupture with the old ideas, contending that it was fallacious to infer the identity of heat and living force from their equivalence, apparently unaware that the theorem of equivalence was not the only argument in favor of this proposition.

The concept of energy is regarded by the new physical philosophy as the only correct point of departure for physical investigation. The principle that each form is decomposable into two factors, together with the theorem of variation connected with it, are regarded as the fundamental law of all nature. Every mechanical illustration designed to explain why energy assumes such and such curious forms and follows in each of them substantially different, though analogous, laws, they regard not only as redundant but even as detrimental; and the problem of physics, nay, of all natural science, for all time to come, is conceived by them to consist exclusively in the description of the deportment of energy in all its

forms, to be in fine a natural history of energy,—an ideal which, if the totality of natural action go by the name of energy, is nothing less than tautological.

The analogies in the deportment of the different forms of energy are beyond question of the greatest significance and interest, and their systematic study must be considered as one of the most beautiful tasks of physics. The importance of the concept of energy also doubtless justifies the attempt to select this principle as a starting-point. And it must further be admitted that the form of research designated classical theoretical physics frequently led to extravagances against which some sort of reaction was imperative. Every Tom, Dick, and Harry felt himself called upon to devise his own special combinations of atoms and vortices, and fancied in having done so that he had pried out the ultimate secrets of the Creator.

I know how helpful it is to consider the problems of science under the most varied aspects, and I have but the warmest sympathy for every original and enthusiastic undertaking in science. I therefore cordially extend to the secessionists my hand. But I was convinced that the energeticians had often suffered themselves to be deceived by superficial and merely formal analogies; that their laws lacked that lucidity and distinctness of form, and their deductions that rigor, which characterised the classical physics; and that they had discarded many elements of the old doctrines that were helpful, nay, even indispensable, to science. And furthermore, the controversy as to whether matter or energy was the only existing reality appeared to me to be a decided relapse to the old metaphysical point of view which we believed we had overcome, and a violation of the principle that all theoretical concepts are constructive images only.

In expressing without reserve my conviction on all these points, I imagined that I was demonstrating, in a far more helpful manner than by praise, my interest in the future development of the doctrine of energy. As in Hertz's mechanics, so in the doctrine that the entire body of physics is deducible from the two component factors of energy and the allied law of association, I

can accordingly discern nothing more than an ideal of the distant future. The latter alone can determine the question, which is to-day absolutely undecided, whether such a constructive theory of nature is better than the old, or is the best obtainable.

* * *

From the energeticians we come to the phenomenologists, who might be termed the moderate secessionists. Their philosophy arose as a reaction against the predominating tendency of the old view to regard the hypotheses concerning the composition of atoms as the real aim of scientific inquiry and the laws for visible phenomena resulting from these hypotheses as merely a means for controlling the same.

True, this tendency characterised only the extremest branch of the old school. We saw that even Clausius had made a rigorous distinction between general thermodynamics, which was independent of molecular hypotheses, and special thermodynamics. Many other physicists also, as for example Ampère, Franz Neumann, and Kirchhoff, dispensed with molecular theories in their deductions, although they did not deny the atomistic structure of matter.

There is very frequently found among the adherents of the old school a method of deduction which I would fain call the Euclidean, seeing that it is modelled upon the method of Euclid's geometry. A few theorems (axioms) are assumed either as self-evident or as established by experience; from these, certain simple elementary laws are then deduced as logical consequences, and from these finally the universal or integral laws are constructed.

This method, in combination with the ordinary deductive procedures of the molecular theory, seemed to satisfy tolerably well all the requirements that had hitherto been demanded of inquiry; but not so with Maxwell's theory of electromagnetism. In his first works, Maxwell conceived the medium that transmitted electromagnetism to be made up of a large number of molecules or at least individual mechanical units; but their structure took so complicated a form that they could not possibly lay claim to any

other validity than that of auxiliary conceptions for the discovery of equations, or that of ideal mechanisms producing effects in some way analogous to the phenomena of reality, certainly not that of definitive facsimile representations of what actually took place in nature. Subsequently, Maxwell showed that many other mechanisms besides those mentioned were capable of leading to the desired goal, provided they satisfied certain general conditions; but all endeavors to find some definite and very simple mechanism embodying all these conditions were fruitless. This paved the way for a doctrine which I believe may be most trenchantly characterised by our reverting a third time to Hertz's ideas. These, as found in the introduction to his treatise on the fundamental equations of electrodynamics, are quite typical of this theory.

Hertz did not seek for, at any rate did not find, a satisfactory mechanical explanation of these fundamental equations; but he also disdained to use the Euclidean mode of deduction. He correctly calls attention to the fact that in mechanics it is not the few experiments from which the mechanical equations are ordinarily derived, nor in electrodynamics the five or six fundamental experiments of Ampère, that have established in our minds the unshakable conviction of the truth of all these equations, but that rather it has been the subsequent complete agreement of these equations with the hitherto known facts of reality. He then delivers the Solomonic dictum that the wisest course is, after the equations are once in our possession, to write them down without any solicitude as to their deduction, and afterwards to compare them with the phenomena and to discern in their unvarying concordance with the facts the best demonstration of their truth.

The view here expressed in its extremest form met with the most varied reception. Some seemed inclined to look upon it as a piece of pleasantry. Others took the matter more seriously. Eschewing utterly the assistance of hypotheses and of visual or mechanical illustrations, they made it the sole goal of physics to write down for every group of phenomena the equations by means of which their behavior could be quantitatively calculated; its sole business consisted for them in the discovery by trial of the

simplest possible equations that fulfilled certain necessary formal conditions, as of isotropy, etc., and in the subsequent comparison of these equations with experience. This opinion is represented by the extreme wing of the phenomenologists, which I am tempted to call the mathematical wing. Mathematical phenomenology differs from general phenomenology. The latter seeks to describe every province of facts after the manner of natural history, by enumerating and delineating all the phenomena belonging to the province, without limitation of the means to be employed, but excluding any set philosophical doctrine, mechanical explanation, or other foundation. It is characterised by Mach in the statement that electricity is nothing more nor less than the sum-total of the experiences which have already been made in this domain and which there is hope of making in the future. Both branches of this school make it their aim to represent phenomena without going beyond experience.

Mathematical phenomenology fulfils primarily a practical need. The hypotheses by which the equations were originally reached were found to be precarious and subject to change; but the equations themselves, after they had been put to experimental test in a sufficiently large number of cases, remained intact, at least within certain limits of exactitude, beyond which they were in need neither of perfection nor refinement. If for practical purposes only, then, it is eminently desirable to divorce as absolutely as possible what is stable and established from what is vacillating and unfirm.

It must further be admitted, that the object of every science, and therefore also of physics, is perfectly attained when formulæ are found by which we can calculate in advance with uniqueness, certainty, and absolute accuracy, the phenomena which are going to happen. But it is to be remembered that this is just as unattainable an ideal as a knowledge of the laws of action and of the initial states of all atoms.

The assumption of phenomenology that nature can be represented mentally without proceeding at any point beyond experience, is in my opinion an illusion. No equation represents phenomena with absolute exactitude; they all idealise the phenomena;

they all emphasise the common features of the phenomena and neglect the divergent; they all, therefore, transcend experience. That this is necessary if our object is to attain conceptions that shall enable us to predict the future, follows from the very nature of thinking itself, which is but a process of adding something to experience and of creating a mental construct which is not experience and which therefore can represent many experiences.

Experience, says Goethe, is never more than half of experience. The more boldly we advance beyond experience, the broader the survey we obtain, the more surprising the facts we discover, but the greater the likelihood of our going astray. Phenomenology, therefore, should not make it its boast that it does not transcend experience, but should merely admonish inquirers not to transcend it too far.

The phenomenologists are also in error when they fancy that they have substituted no constructive images for nature. Numbers, their various relations and combinations, are as much constructive images as the geometric representations of mechanics. They are less exuberant, they are better adapted to quantitative representation, but on the other hand they are ill qualified for opening up new perspectives; in fine, they are very poor guideposts for discovery. And so, all the other conceptions employed by general phenomenology prove to be constructive images of phenomena. The best results, therefore, will doubtless be obtained by the employment of all the various methods of representation, each according as it is needed; care being taken to put our representations to fresh experimental tests at every step.

If this be done, there will be no danger of our overlooking facts through prepossession with our theories, as the atomists have been reproached with doing. This is a danger to which every theory is exposed, no matter what its character, when its special bias is pushed to the extreme. The difficulty therefore was due less to any distinctive feature of atomism than to the fact that inquirers had not been sufficiently forewarned against placing implicit confidence in their theories. It is no less impermissible for the mathematician to confound his formulæ with the truth, unless he also

would run the risk of becoming blinded to the facts. This is seen in the case of the phenomenologists when they refuse to take note of so many facts that are intelligible from the point of view of special thermodynamics alone; in the case of the opponents of atomism when they absolutely ignore everything that speaks in favor of their doctrine; nay, even in the case of Kirchhoff when, relying upon the applicability of his hydrodynamic equations, he held the inequality of pressure at different points of a heat-conducting gas to be impossible.

The mathematical phenomenologists naturally reverted to the concept of the continuity of matter, which had the support of appearances. I called to their attention the fact that by definition the differential equations which they used represented transitional limiting states, which were totally devoid of meaning without the assumption of a very large number of individual entities. An unthinking use of mathematical symbols only could ever have led us to separate differential equations from atomistic conceptions. As soon as it is clearly seen that the phenomenologists, under the veil of their differential equations, also proceed from atomistic entities, which they are obliged to conceive differently for every group of phenomena and as endowed now with these and now with those complicated properties, the need of a simplified and uniform atomistic doctrine will soon be felt again.

The energeticians and phenomenologists attributed the decline of the molecular theory to its unfruitfulness. Whereas this theory, in the opinion of some, had never done aught but injury, others admitted that it had originally been of great utility and that nearly all the equations which are now regarded by the mathematical phenomenologists as constituting physics were obtained by the methods of the molecular theory. The only contention of the phenomenologists was that now that we had acquired these equations the molecular theory was superfluous. All vowed its annihilation. They appealed to the historical principle that frequently opinions which are held in the highest esteem have been supplanted within a very short space of time by totally different theories; nay, even as St. Remigius the heathens, so now they exhorted the theoretical phys-

icists to consign to the flames the idols that but a moment previously they had worshipped.

But historical principles are sometimes double-edged weapons. History does no doubt often show revolutions which have been unforeseen; unquestionably, it is profitable to bear in mind the fact that what now seems to be most firmly established may possibly be supplanted by something entirely different; but it should also be borne in mind that some achievements may possibly remain the possessions of science for all time, though in a modified and perfected form. Indeed, by the very historical principle in question a definitive victory for the energeticians and phenomenologists would seem to be impossible, since their defeat would be immediately required by the fact of their success.

* * *

Following the example of Clausius, the adherents of special thermodynamics never disputed the high import of general thermodynamics; the successes of the latter science, therefore, prove nothing against the validity of the first. The question simply is whether there are not additional results which atomism only could have reached, and of such results the atomistic theory has had many remarkable specimens to show, even long after the period of its greatest glory. From the principles of purely molecular physics Van der Waals deduced a formula which gives the behavior of liquids, gases, and vapors, as well as of the various transitional forms of these aggregate states, with admirable approximation if not absolute decision, and which has led to many new results, as, for example, the theory of corresponding states. Considerations derived from molecular physics have just recently indicated the way for the improvement of this formula, and the hope is not a forlorn one that the behavior of the simplest chemical substances, namely argon, helium, etc., may soon be represented with absolute exactness; so that it is precisely the atomistic theory that has approached nearest to the ideal of the phenomenologists, namely that of a mathematical formula which shall embrace all physical states. To this has been added a kinetic theory of liquids.

Just as it formerly shed light on Avogadro's law, on the nature of ozone, etc., so recently the atomistic theory has contributed much to the illustration and elaboration of Gibbs's theory of dissociation, which, though found by a different method, was nevertheless reached by a process which took for granted the general fundamental concepts of the molecular theory. The atomistic theory has not only supplied a new foundation for the equations of hydrodynamics, but it has also shown where these equations and those for the conduction of heat are in need of correction. If phenomenology deems it expedient, as it certainly must, constantly to institute new experiments for the purpose of discovering possible necessary corrections for its equations, atomism accomplishes much more in this respect, in that it enables us to point definitely to the experiments which are in most likelihood of leading to these corrections.

So also the specifically molecular theory of the ratio of the two specific heats of gases is to-day again playing an important rôle. For the simplest gases, the molecules of which behave like elastic spheres, Clausius had calculated this ratio to be $1\frac{2}{3}$, a value which applied to none of the gases then known, from which he concluded that gases so simple in structure did not exist. Where the molecules acted on impact like non-spherical elastic bodies, Maxwell found the value $1\frac{1}{3}$ for this ratio. But since the ratio for the best-known gases had the value 1.4, Maxwell likewise rejected his theory. But he had overlooked the case in which the molecules are symmetric with respect to one axis; for this case, the theory also requires for the ratio the exact value 1.4.

The old value of Clausius, $1\frac{2}{3}$, had already been obtained by Kundt and Warburg for mercury vapor, but owing to the difficulty of the experiment it had never been repeated and was almost forgotten. But the same value, $1\frac{2}{3}$, for the ratio of the two specific heats again turned up in the case of all the new gases discovered by Lord Rayleigh and Ramsay, and all the other circumstances pointed, as they had done with mercury vapor, to the extremely simple molecular structure required by the theory. What would have been the consequences for the history of the theory of

gases, if Maxwell had not committed this slight inadvertence, or if all the new gases had been known at the time of Clausius's first calculation? All the values demanded by the theory for the ratio of the two thermal capacities of the simplest gases would have been actually corroborated by experiment.

I have to mention finally the relations which obtain according to the molecular theory between the principle of entropy and the calculus of probabilities, concerning the real significance of which there may be some difference of opinion, but which, no unprejudiced person will deny, are eminently qualified to extend our intellectual horizon and to suggest new combinations both of ideas and experiments.

All these achievements, and numerous earlier acquisitions of the atomistic theory, could not possibly have been reached either by phenomenology or by energetics, and I maintain that a theory which has produced so many independent results unattainable in any other way, and for which so many other physical, chemical, and crystallographical facts speak, is deserving of cultivation and not of antagonism. But as to our conceptions of the nature of molecules, here the greatest freedom must be allowed. Thus, the theory of the ratio of the specific heats must not be abandoned because it is not universally applicable, for the molecules behave like elastic bodies only in the simplest gases, and even in these not at the highest temperatures and only with respect to their impacts. As to their more intimate, and doubtless enormously intricate, composition, we possess as yet no clues; our efforts are to be bent rather on acquiring these. The precise determination and discussion of the equations, free from all hypotheses, is equally indispensable, and is an aim to be pursued coincidently with the atomistic method; but for this reason the one is not to elevate its mathematical formalism, or the other its atomic units, to the rank of dogmas.

* * *

To-day the battle of opinions rages tempestuously. Each holds his own to be the correct one, and it is well that he does so if his intention is but to pit its strength against that of its antagon-

ists. The rapidity of scientific advancement has strung the hopes of all to their highest pitch. What will the outcome be?

Will the old mechanics with the old forces, stripped of its metaphysical garb, continue to persist in its main features, or is it to exist henceforward merely in the pages of history, pushed from its high estate by the invisible masses of Hertz, or by some other totally different conceptions? Are the essential constituents of the present molecular theory, exclusive of all modifications and extensions, to endure for all time; is an atomistic theory totally different from the present one to reign supreme in the future; or, in subversion of the arguments that I have adduced, is the conception of a pure continuum as the most adequate representation of nature to prove victorious? Will the mechanical philosophy of nature gain the decisive victory by the discovery of some simple mechanical construct for representing the luminiferous ether; will at least mechanical models persist for all time; will new, non-mechanical models prove better adapted; will the two component factors of energy control absolutely the domain; will inquirers ultimately be content to describe each natural agent as the sum of its various component phenomena; or will theory be transformed into the mere collection of formulæ and the discussion of the equations involved?

Is it possible that the conviction will ever arise that certain representations are *per se* exempt from displacement by simpler and more comprehensive ones, that they are "true"? Or is that perhaps the best conception of the future, to imagine something of which one has absolutely no conception?

These are, indeed, interesting questions. One regrets almost that one must pass away before their decision. O arrogant mortal! Thy destiny is to exult in the contemplation of the surging conflict!

As for the rest, the wisest course is to grapple with the work at hand, and to leave off cudgelling our brains as to what the future has in store. Has the wanig century not achieved enough? An unforeseen accumulation of positive facts, a searching scrutiny and refinement of the methods of research, these are its bequest to the dawning one. A Spartan martial chorus was wont to exclaim

to the nation's youths: Be more valorous than we! It has been an ancient custom of our land to invoke blessings upon the incoming century, and we can do so in the present case most appropriately, and with no less pride than the Spartans, by wishing that it may be greater and fraught with loftier significance than the departing one. *Ηαρπὸς ἀμείνων.*

LUDWIG BOLTZMANN.

LEIPSIC.

GOETHE AND KANT.¹

IN the sky of the classical age of our literature shines with clear and all-surpassing splendor a group of three great stars: Kant, Goethe, Schiller. The thinker, who first set German philosophy upon its own feet, after a long tutelage and dependence upon foreign thought, and for more than a century determined the trend of thought of friends and opponents alike; the poets, who enriched German literature with materials of the finest culture, and by their most perfect artistic forms brought it to a par with the highest productions of poetic genius in other times and climes.

To trace out the relations of these three minds, so mighty and yet so different, is a task which has always appealed to investigators. But the material is not at hand for all questions alike that arise in this connexion, nor sufficient for positive conclusions. For the intimate community of spiritual life which existed from 1794 to 1805 between Schiller and Goethe, we have, aside from many other reports, their noble correspondence, which is itself one of the treasures of our literature. The influence of Kant's thought upon Schiller is evident to all. Schiller himself professed to be a pupil of Kant, despite certain points of difference, and won an important place in the history of Kantianism by his philosophical treatises. But it is different with the relation of Goethe to Kant. Even to the present day there is much uncertainty on this subject, due in part to the inconsistent attitude of Goethe toward philosophy in general. For while he himself once declared that he lacked the

¹ Translated from Professor Jodl's MS. by W. H. Carruth, of the University of Kansas.

faculty for philosophy in the strict sense of the word, wherefore he had always avoided it and taken the standpoint of sound common sense, there runs through his whole development a certain connexion with philosophy, "which he could never do without, yet could never adapt himself to." We have further to consider that Goethe himself, in familiar passages of his poetic autobiography and of his letters, confesses in the warmest manner the influence exercised by Spinoza on his philosophy of the universe. And this extreme antithesis of Kantian thought may be traced without difficulty in many poetic utterances of Goethe as well as in observations in his scientific writings. It was indeed inevitable, in the course of his association with Schiller, that Kant should have come within his ken; but the traces of any such influence seem to be lost very soon, and one who reads in the *Conversations with Eckermann* that it was a melancholy spectacle to see "how such an extraordinarily gifted man (Schiller is referred to) tormented himself with philosophical methods and systems which could be of no use to him," would scarcely feel encouraged to trace out the thread that leads from Goethe to Kant.

Thus it comes that the most of the numerous works on Goethe give no especial consideration to this point, and that Otto Harnack in his excellent book, *Goethe in der Epoche seiner Vollendung* (1882), could justly point out that the influence of Kant upon Goethe had not yet been properly estimated and presented. Loepke in his notes to the poems and epigrams and to other works had called attention to many points of contact between the poet and the philosopher, but it was reserved for a young Kantian in very recent times to gather for us by his enthusiasm and persevering labors the most abundant material for estimating the mutual relations of Goethe and Kant.

In the first three volumes of the journal *Kantstudien*, published by Vaihinger, K. Vorländer, of Solingen, depicts "Goethe's relation to Kant in its historical development," collecting and discussing in their yearly sequence all the utterances by and about Goethe that are at present attainable. By this very meritorious study, which has been conducted with the greatest philological precision,

a sudden flood of light has been thrown upon this question, whose difficulty was increased by the extraordinarily scattered condition of the sources, and a new revelation made of the admirable greatness and catholicity of Goethe's mind. Vorländer, who is a pronounced neo-Kantian, may perhaps in the interpretation of his abundant material "Kantise" Goethe too much occasionally, and this will rather justify the attempt of the present paper not only to present the most important conclusions of his treatise, but also to emphasise the profound difference in their conceptions of the universe which separates Kant and Goethe despite all that they have incidentally in common: an opposition which has lost neither its keenness nor its significance in the philosophic thought of to-day.

I.

On his return from Italy (1788) Goethe had found Kantianism established as a spiritual force in his immediate circle. The most zealous and enthusiastic apostle of Kant, the Viennese Karl Leonhard Reinhold, had been called in 1787 to the University of Jena, and had forthwith established the critical philosophy there and actually won for it decided academic triumphs. A few years before his appointment certain prominent men of the University, among them the philologue Schütz and the jurist Hufeland, had united in the establishment of the *Allgemeine Jenaische Litteraturzeitung*, which took a decided stand for the new philosophy. Reinhold's *Briefe über die Kantische Philosophie* in the *Deutscher Merkur* amounted to a literary event. Naturally a mind like Goethe's could not ignore this movement, and we are not surprised to see Wieland announcing to Reinhold, who was his son-in-law, in February, 1789: "Goethe has been studying Kant's *Critique (of the Pure Reason)* for some time with great persistence. . . ."

Meantime the *Goethe Archiv* has brought to light a remarkable support for this "persistence,"—a manuscript in Goethe's own hand containing a careful abstract of Kant's book, and a considerable quantity of slips and separate sheets on which Goethe had noted down the doubts and objections which occurred to him as he read. The date of these notes is not surely known. It is

possible that they are a fruit of the increased interest in Kant and his philosophy aroused in Goethe by the *Critique of the Judgment*. We have his own testimony to the strong impression made by this work. He dates from this work of Kant "a very joyful period of his life." He observes that "the great leading thoughts of the work are quite in harmony with his own previous life, work and thinking." "The inner life of art as well as of nature, their reciprocal effects from within outwards were clearly expressed in the book. It declared that the products of these two boundless worlds existed only on their own account, and that, though co-existent and indeed naturally helpful, they were not designed on account of one another. . . . I am glad that poetry and comparative natural history are so nearly akin, both being subject to the same judgment." Moreover, Goethe himself testifies that the study of the *Critique of the Judgment* had again drawn his attention to the *Critique of the Pure Reason* and led him to hope to become more intimately acquainted with this work. He perceives correctly that the two works are pervaded by the same spirit and that they are mutually dependent.

This new relation to Kant is revived and deepened from 1794 on by the intimate personal association with Schiller, who had been impressed by the Kantian philosophy in Jena and had thoroughly assimilated the ethical and æsthetic features of it.

In the *Annals* for 1795 Goethe remarks that the association with Schiller is bringing him into ever closer relations with Kant's philosophy and the University of Jena, and by this fact he explains his gradual alienation from his former close friend, Herder, whose enthusiasm for the Kant of the pre-critical period had been changed by the development of the critical philosophy into an ever more violent antipathy. The correspondence of Goethe and Schiller shows clearly how this intercourse rouses in Goethe a growing interest in the philosophical development of Germany, and oral as well as written expressions of Goethe from a much later period prove also that he thoroughly appreciated the profound influence of philosophy upon the intellectual life of Germany. It is to Kant, in fact, that he attributes the overthrow of that "popular philos-

ophy" which he declared was so intolerable to him personally. We have also cordial expressions of Goethe's concerning Kant's ethics, appreciating their influence in the history of civilisation and ascribing to them the immortal merit of having "redeemed us from that effeminacy into which we had fallen."

II.

Nevertheless there cannot be the slightest doubt that Goethe's intellectual nature was profoundly and inherently different from that of Kant. True, I do not find a single specific utterance of Goethe going to prove that he clearly saw the essential point from which all recognition or refutation of Kant's critical philosophy must proceed. This is, of course, the phenomenism of the system. Did Kant succeed in giving the proof that there are actually synthetic judgments *a priori* in the sense meant by him? Do the qualities of sensation, space, time, the categorical structure of our thought, originate solely in the subject and his intellectual organism? No one who is dissatisfied with that proof can ever be called a Kantian, no matter how many individual points he may borrow from the mighty intellectual treasury of the Kantian philosophy. Nowhere do we meet in Goethe any attempt to free himself from the spell of this proof, which, strange to say, holds many minds enthralled to the present day, despite its great defects. Even when Herder's *Metakritik* against Kant appears, marshalling, though in a very inadequate form as to method, many very important thoughts on this capital point, we seek in vain for any word of approval from Goethe. On the contrary, as we learn from a letter to Schiller, he seems to have felt repelled by the undignified form of this attack, and to have acquired a sufficient conception of Kant's scientific importance to express to Schiller his conviction that the birth of the *Metakritik* had "not yet paralysed the sage of Königsberg upon his tripod."

But nothing could be more erroneous than to infer, from the circumstance that we find no attempt of Goethe's to clear up by scientific argument, his own notions of the foundation-thought of Kantianism that Goethe was ever really won over to this thought.

Such a critical examination was not indeed to be expected of the poet. But one who reads him with unbiased mind will not fail to find it after all. For Goethe's whole conception of nature, as it is to be seen in innumerable expressions of his poems, his epigrams, and his scientific works, is absolutely irreconcilable with the "Kantian point of view." From this point of view Nature is not a reality with an inner life of its own, but only a gigantic phenomenon of projection on the part of the Ego, the mind, in which the latter merely contemplates its own conformity to law under the symbol of an orderly universe. Above this world of phenomena with its conformity to law, which is for us at the same time a suggestion of the real world, because no other is evident to our senses, stands a supersensual world, of which we have knowledge in a way wholly independent and different from that of the senses: through the majesty of the moral law, that fact inexplicable from the world of sense, but testifying in our inner consciousness that man is the citizen of two worlds. The first, the world of sense, the object of our perceptions, is mere appearance; the other, the world of ideas, is real, the highest reality, but not the object of any perception. We can know nothing of it; can merely believe it.

Views of this sort, such a dualism of sensual and spiritual worlds, and such as is to be found in multitudinous ramifications throughout the whole critical philosophy of Kant, are wholly foreign to Goethe. His whole thought is supported by the conviction that Nature, as revealed to our senses, is an expression of the highest and all-embracing reality; that the Primal Being himself is no mere phenomenon; his whole poetic product is inspired by the feeling of the most intimate kinship, even of unity, of man and Nature, the feeling of most reverent gratitude toward her, the eternal mother, the feeling of fraternal relation with all her children from the simplest organisms up to man. It is true, Goethe also pointed out over and over again the limits of our knowledge of nature. It suggests directly the tendencies of the critical philosophy when he preaches self-restraint to the investigator; when he warns against "babbling theories, fancies, hasty blunders of an impatient understanding," when only the statement of problems is

called for; when he compares the inexplicable to a continued fraction,—if we try to solve it we only bring confusion into the problem. The sentence is often quoted: "the happiest state for a thinking man is to have fathomed the fathomable and calmly to revere the unfathomable."

Without doubt Kant influenced him in such views as these, as indeed he himself admits that he got much "for domestic use" from Kant. But when, at the height of the influence of Schiller and Kant, Goethe writes to Jacobi, Oct. 17, 1796: "You would no longer find me such a stubborn realist; it is a great advantage to me that I have become somewhat better acquainted with the other modes of thought, which, though I cannot make them mine, I need greatly in practical use to supplement my one-sidedness,"—this gives a very plain hint. No, those other views could never become his; the obstacle was what Schiller and Koerner once called the "sensual element" in Goethe's philosophy, and which, years after the death of both Kant and Schiller, came out in Goethe in a most typical fashion when young Schopenhauer, a zealous and thorough-going Kantian, tried to explain that light would cease to exist along with the seeing eye. "What!" he said, according to Schopenhauer's own report, "looking at him with his Jove-like eyes,"—"You should rather say that you would not exist if the light could not see you?" "This Goethe," Schopenhauer adds, "was such an utter realist that he could absolutely not conceive that objects exist only in so far as they are pictured by a perceiving subject."

Here is shown most pointedly the dividing line which, despite occasional critical warnings, separates Goethe from the critical philosophy as a system: the deep conviction of the objective and not merely subjective reality of the world that appears to our senses. In its totality it is an infinite problem for our cognition; but not because our cognition can nowhere attain to reality, but because the reality in the multiplicity and complexity of its processes everywhere exceeds the grasp of our finite thought. From this point of view it becomes perfectly intelligible why it was precisely the *Critique of the Judgment* that roused Goethe's interest in

Kant. And we should remember that this same work was the germ out of which grew later Schelling's system, particularly his philosophy of nature and his transcendental idealism, which were greeted with warm enthusiasm and toward which Goethe acknowledged a decided leaning. He found here invaluable support for a thought that had always been dear to him, that of the universal immanence of Mind in Nature. This *hylozoism*—so he himself names his views—made him unsusceptible, even intolerant, toward that view which makes dead matter an article of faith.

This was the reason of his opposition to the materialism of the *Système de la nature*, and he could not fail to see what life this new view gave to the Spinozism which he esteemed so highly. And the above-quoted expression of Goethe's concerning the effect upon himself of the *Critique of the Understanding* shows beyond all question that it was not the critical standpoint which he adopted, but rather the constructive—the thought with which Kant at the close of this work refers to what lies beyond and above it. The contemplation of organic nature seemed to end in a contradiction between the mechanical and the teleological interpretations. All investigation of nature must undertake the task of deriving organic and conscious life from unorganic existence. But this goal is unattainable. The adaptation of means to ends which we see in the organic world could be comprehensible to us only as the work of an intelligence which causes the mechanical forces of nature to work with design. But such an intelligence is nowhere apprehended in our experience. One argument seems to cancel the other, and thus to leave our knowledge of nature quite in the dark. In the midst of this darkness Kant sees a flash of light: Is it not possible that this contradiction is only apparent, existing only in our way of looking at the matter? Is it not possible that in the occult depths of nature the mechanical and the teleological connexions are united in one single principle, even though our reason be unable to give this principle an outward form?

I believe that this thought—one of the profoundest to be found in Kant—marks the point of the closest agreement between him and Goethe, and at the same time the point at which they begin to

separate. For from this point the road leads from criticism back to Giordano Bruno and Schelling's philosophy of identity. Here is the root of Goethe's notion and conception of Nature as God, the basic significance of which for his thought finds evidence in numerous expressions both in prose and verse from all periods, and this constitutes the keenest contrast to the absolutely transcendent conception of God in the Kantian system, a conception which has a moral, but no physical, significance.

Goethe was no philosopher in the scientific sense. But it is belittling him to represent him as the lackey of a philosophy which, despite its great features, bears so unmistakably the stamp of inadequacy as does the system of Kant. With his truly universal intellect, Goethe perceived in Kantianism its spiritual power, and adopted whatever suited him—which was indeed much. But he never was a Kantian, never could be one. Before his mind stood the outlines of a philosophy which he himself could only dream of as a poet, not put into scientific shape, or demonstrate systematically, but which, when it finds its Prometheus in the dawning century, will compare with the Kantian system as does clear sunshine to the mists of morning.

FRIEDRICH JODL.

VIENNA.

JEW AND GENTILE IN EARLY CHRISTIANITY.

CHRISTIANITY (as we have seen in a previous article on a kindred subject¹) is the natural product of a historical process. When by the conquests of Alexander the Great the barriers which separated the nations of antiquity were broken down, national prejudices began to dwindle away, and the new intercourse and mutual contact of the nations resulted in a powerful fermentation in the minds of the people, which found expression in a peculiar species of religious syncretism that gradually spread over the whole Roman Empire. This movement, consisting in the hope of religious salvation through divine enlightenment (through Bodhi, as the Hindu calls it, or, as the Greek expressed it, through Gnosis), is in all its salient features pre-Christian, and the Nazarenes of Palestine (as well as the Essenes, the Ebionites, and the Zabbæans) are but characteristic expressions of the times, having their analogies in the *therapeutæ* of Egypt and the pre-Christian Gnostics of Syria.

The seeds of Gnosticism that were scattered among the Hebrew people, both in Palestine and in Babylon, fell upon good ground, as preparations had been made for their reception through great sufferings. Moreover, the Jews of the diaspora were naturally predisposed to be transmitters of new religious thoughts. They knew foreign languages and acted among the Gentiles as agents in business and commerce. In the history of religion, too, they play the important part of brokers, furnishing the nations with a stock exchange of philosophical thought.

For these reasons it is natural that Syria, Alexandria, and the

¹ "Gnosticism in its Relation to Christianity," *The Monist*, Vol. VIII., p. 502.

cities of Asia Minor, all of which were great centers of the Jewish diaspora, should become the seats of Gnostic teachings and of an anxious search for new truths.

The Jews came into the closest and most friendly contact with the Persians, one of the most ideal nations of antiquity, whose religious faith was free from idolatry of every kind and philosophically purer than any other religion. Ahura Mazda, the Lord Omniscient, was not worshipped after the manner of pagan adoration, for the Persians conceived him to be spirit without body. His appearance, if comparable to anything, was deemed to be most like the light, and his soul was defined as the truth. Life was regarded as a struggle between good and bad, in which we must take part. Zarathustra taught that a great crisis was at hand. The bad is powerful now, but in the end the good will conquer. Saviours arise from time to time, and at last the saviour (*saoshyau*) will appear, the son of a virgin, and his name shall be Righteousness Incarnate. Then the great day of judgment will come which shall purge the world of all evil through the ordeal of molten metal. The new order of things will include those who have passed away; the dead shall be raised, but the future body (*tanu-i-pasin*) will be so ethereal as to cast no shadow.

Even in the canonical literature of the Israelites, the Lord Omniscient (Ahura Mazda) of the Persians is identified with Jahveh; and Cyrus, the liberator from the Babylonian yoke, is greeted as the Messiah.¹

How could the religion of the Jews remain uninfluenced by the Persian doctrines? If Babylonian beliefs and institutions, which constituted the religion of a hated oppressor, proved strong enough to modify the old traditions of Jahvehism and introduced new legends,² festivals,³ and customs,⁴ how natural it is that the purer

¹ Isaiah c. 43.

² The story of the creation in six days, the legends of the flood, of the destruction of impious cities by a rain of fire, the finding of Moses, etc.

³ The Purim festival is a Judaised version of the celebration of Bel's victory over Tiamat. Marduk is Mordachai, Isthara is Esther.

⁴ The institution of the Sabbath is of most ancient origin in Mesopotamia.

and more elevating Zarathustrian faith of the Persian liberators should have left its imprint upon the grateful minds of the Jews! We know, for instance, from the Septuagint that the Persian king Cyrus regulated the worship of the Lord (Ahur, or *κύριος*) in the temple of Jerusalem¹ according to Persian fashion, with an eternal light.

Mazdaism, the Persian religion, is a strict monotheism, which, however, personifies the qualities of God, and thus gave rise, on the one hand, to the doctrine of angels and archangels, and, on the other, to the conception of a plurality of the energies or activities of God, which were spoken of as *Spenta Mainyu*, the Holy Spirit (similar in conception to the Christian Holy Ghost), as the Good Thought (*Vohu Manha*), as the Divine Wisdom (*Khratu*), as the Kingdom or the Good Kingdom (for the coming of which prayers were said), as the Pure and Stirring Word that existed before anything else and through which the world was made.²

By the side of Mazdaism, we find Indian influences that made themselves felt among the Jews. The authors of Alexandrian Judaism (among whom Philo is the most renowned and the most learned) make frequent mention of the Gymnosophists, the Jains of India, and expound some of their strange doctrines. Buddhism itself, so similar in many respects to Christianity, is nowhere specially mentioned in the contemporaneous literature of this age, and yet we have indubitable though meagre vestiges of Buddhist

The word *sabbatu* is Accadian and means "day of rest." The Babylonians adopted it from the Accadians and transmitted it to the Assyrians.

¹ βασιλεὺς Κύρος προσέταξε τὸν οἶκον τοῦ Κυρίου τὸν ἐν Τεροναλῆμ οἰκοδομῆσα, δτον ἐπιθέμονοι διὰ πυρὸς ἐνδελεχοῦς. ΕΣΔΡΑΣ, Α. Σ. 24. See also Chron. xxxvi. 22-23, repeated in Esra i. 1-2.

² For brief but instructive accounts of all these striking doctrines of Mazdaism, see Prof. A. V. Williams Jackson's articles, one in *The Monist*, Vol. IX., No. 2, p. 161, the other in *The Biblical World*, Vol. VIII., No. 2. We have urged our learned contributor to compile a book on the religion of the Persians and to set into strong relief the prophetic anticipations of Christianity to be found in the Zarathustrian faith. It is a book greatly needed. It would throw much light on the origin of Christianity and at the same time explain why dominion over all Asia was given to the Persians, to the nation that had the purest religion; and we should also see how they were enabled to rule the world until their fidelity to the pure morality of their religion began to relax.

traditions in the New Testament itself, making it certain that its doctrines were not quite unknown in Syria in the days of Christ. There are several curious parallelisms between the accounts of Buddha's life and the Christian Gospels, too similar in details and too frequent to be purely accidental; the Buddhist Jataka tales migrated West in the shape of Æsop's fables and in the story of Josaphat and Barlaam; and the Rock Inscriptions of Asoka speak of the missionaries sent to the Western Kingdoms, among which Syria and Egypt are specially mentioned. The use of the typically Buddhist term "wheel of life" (*τρόχος γενέρεων*) in St. James's Epistle (wrongly translated in all modern versions), which was no longer understood in its original significance, is in itself irrefutable evidence of incidental Buddhist notions in Western countries.¹

The canonical books of the Old Testament contain no indication of a belief in immortality, and philosophical conceptions as to the beginning and the end of the world were foreign to the Hebrew prophets and priests. The doctrine of the creation of the world was introduced into Hebrew literature in two versions, both ultimately derived from Babylonian sources. But the doctrine of an end of this world and a beginning of a new one appears only in the later apocryphal books and assumes the shape of apocalyptic visions, of revelations of the things to come.

There is only one book of this character, the revelation of St. John the Divine, left in the Christian canon, but apocalyptic literature was so powerful a factor in the building up of Christianity that we cannot pass the subject by without a few comments.

The prototype of all revelations of Judaism, Gnosticism, and Christianity, including the *Divina Comedia* of Dante, seems to be the *Artā Virāf Nāmāk*, a vision of Heaven and Hell as seen by the Zoroastrian prophet Artā Virāf. In Hebrew literature the eschatological spirit, which first appears in Ezekiel and Daniel, made a deep impression on the religious mind of the Jews, and soon a veritable flood of revelations appeared, among which the book of Henoch is the most noteworthy product of the fermenting process

¹ See the author's *Buddhism and its Christian Critics*, pp. 165-194.

of the age. Other books of more or less importance are the Assumption of Moses, the Revelation of Moses, the Revelation of Baruch, the Sibyllines, the little Genesis (also called the book of the Jubilees), the prophecy of Esdras and others.¹

The character of the Revelation of St. John the Divine remained an unsolved problem to the investigators of New Testament history, until its connexion with the apocalyptic books of the Old Testament was understood. St. John's apocalypse was received within the canon of the New Testament not without serious protests, and yet it is one of the most genuine Christian writings, representing a very important phase in the development of the Church, and mirroring the period of transition from Judaic Christianity to the establishment of the Gentile Church. Besides the apocryphal books of the Old Testament, which show traces of the older Gnosticism and constitute a transition to the literature of the New Testament, there is the formation of those Jewish sects enumerated above which profess a belief in the coming of the Good Kingdom which is thought to be near at hand with its new order of things.

There can be no doubt about the pre-Christian existence of the Nazarenes, for Christ himself is called a Nazarene; and the name of this sect remained for several centuries the name of the Jewish Christians. St. Paul, soon after his conversion to Christianity, is spoken of by the Jews, according to the report in the Acts, as a ringleader of the Nazarenes. It is difficult to decide whether the Essenes, Ebionites, and Zabbaeans were only other names for Nazarenes, or whether they were different congregations of a kindred

¹ See Hilgenfeld, *Die jüdische Apokalypse*. As to the prophecy of Esdras we have to add that it is one of the most superior productions of apocalyptic writings. It contains several passages of vigor and poetic beauty, while the crudities which are an almost indispensable accompaniment of this class of literature are less offensive than in the Revelation of St. John the Divine. We no longer possess the original of Esdras, the date of which has not as yet been determined, but only versions in Latin, Ethiopic, Syriac, Arabic, and Armenian. Parts of the book show evidences of emendations of the first century of our era; a fact, however, which does not exclude the possibility of the bulk of the work's being pre-Christian. Certainly, neither Christians nor Jews of the first century could very well have spoken of Christ, of the Messiah or Anointed One, as does the author of the prophecy of Esdras. The vision of the eagle may be a later addition.

spirit. If different, they were certainly children of the same Gnostic movement, and all of them cling to the common ideal of trying to realise the kingdom of Heaven on earth. There was probably a vast difference of opinion as to the nature of the kingdom of God and the method of its realisation, but this much was the accepted belief of all, that a saviour, a leader like Joshua, would come and introduce the new order of things.

Our reports of the early Jewish Christianity are very meager. They are practically limited to passages in the Epistles of St. Paul, to the Acts of the apostles, and a few passages in the literature of the Church Fathers; but they are sufficient to prove that the oldest Christian congregation was a communistic society which held all things in common. We read in the Acts (ii. 42-47):

"And they continued steadfastly in the apostles' doctrine and fellowship, and in breaking of bread, and in prayers.

"And fear came upon every soul: and many wonders and signs were done by the apostles.

"And all that believed were together, and had all things common;

"And sold their possessions and goods, and parted them to all men, as every man had need.

"And they, continuing daily with one accord in the temple, and breaking bread from house to house, did eat their meat with gladness and singleness of heart.

"Praising God, and having favour with all the people. And the Lord added to the church daily such as should be saved."

And again (iv. 34-37):

"Neither was there any among them that lacked: for as many as were possessors of lands or houses sold them, and brought the prices of the things that were sold,

"And laid them down at the apostles' feet: and distribution was made unto every man according as he had need.

"And Joses, who by the apostles was surnamed Barnabas, (which is, being interpreted, The son of consolation,) a Levite, and of the country of Cyprus,

"Having land, sold it, and brought the money, and laid it at the apostles' feet."

In the enthusiasm of the Pentecost awakening many well-to-do citizens had joined the congregation and thus "there was in those days not any one among them that lacked." But the times changed,

for we know from the fact that collections were made among the Gentile Christians for the Saints at Jerusalem that the communistic experiment of early Christianity proved a failure and was not repeated by St. Paul. It is noteworthy that Peter in his Pentecost sermon says, not that Jesus was Christ, but that being raised from the dead and having ascended to Heaven, "God hath made that same Jesus whom ye have crucified both Lord and Christ." The main trend of Peter's Pentecost sermon is eschatological. He quotes as words of God sentences from Joel and Zachariah, giving them an apocalyptic interpretation, in referring them to the day of judgment, saying (Acts ii. 19-20):

"And I will shew wonders in heaven above, and signs in the earth beneath; blood, and fire, and vapour of smoke:

"The sun shall be turned into darkness, and the moon into blood, before that great and notable day of the Lord come."

Otherwise Peter preaches the doctrine of St. John, the Zabæan, only adding thereto the name of Jesus and promising the gift of the Holy Ghost, saying:

"Repent ye and be baptised, every one of you, in the name of Jesus Christ, for the remission of sins, and ye shall receive the Holy Ghost."

The Gentile Christianity was founded by St. Paul, not as a continuation of the Nazarene doctrines, but in perfect independence of the early Church at Jerusalem.

Paul prides himself on the fact that he owes nothing to the other apostles, saying, "I neither received the gospel of man, nor was I taught it, but by the revelation of Jesus Christ." He interprets his downfall on the road to Damascus and the flash he saw when struck with blindness for several days, as a Christophany, and claims therefore to have seen Christ face to face. Apparently he cares very little about the historical facts of the life of Jesus, for he purposely avoids contact with the disciples of Jesus, saying (Gal. i. 17):

"Neither went I up to Jerusalem to them which were apostles before me; but I went into Arabia and returned again unto Damascus."

Paul's first meeting with Peter and James apparently did not

serve the purpose of instruction, but was merely a visit for the establishment of friendship and good-will. Paul says (Gal. i. 18-20):

"Then after three years I went up to Jerusalem to see Peter, and abode with him fifteen days.

"But other of the apostles saw I none, save James the Lord's brother.

"Now the things which I write unto you, behold, before God, I lie not."

Paul is very explicit in relating all his connexions with the Jewish Christians. He continues :

"Afterwards I came into the regions of Syria and Cilicia ;

"And was unknown by face unto the churches of Judæa which were in Christ.

"But they had heard only, that he which persecuted us in times past now preacheth the faith which once he destroyed."

Then, after fourteen years of successful work among the Gentiles, having acquired a strong fellowship among them, Paul went up to Jerusalem to be recognised by his fellow-apostles, or, as he expressed it, "lest by any means I should run, or had run in vain."

The alliance which was thus formed between the Gentile Church and the Jewish Christians was possible only so long as they kept at a distance. The latter kept the law punctiliously, thinking that not one jot nor tittle should pass from it, and lived up to Christ's demand, "Sell all thou hast and give it to the poor"; the former adopted Paul's view of living in the world without being of the world. St. Paul describes their covenant in these words (Gal. ii. 9-12):

"When James, Cephas, and John, who seemed to be pillars, perceived the grace that was given unto me, they gave to me and Barnabas the right hands of fellowship; that we should go unto the heathen, and they unto the circumcision.

"Only they would that we should remember the poor; the same which I also was forward to do."

Paul was perfectly conscious of the fact that his Gospel differed from the Nazarene Christianity, for he states directly that he "communicated unto them [i. e., Peter and other pillars of the Church at Jerusalem] that Gospel which he preached among the Gentiles, but privately to them which were of reputation" (c. 2, 2).

St. Paul was perfectly satisfied that the Jewish Christians should remain Jews and retain all their particular traditions. Peter and

the other apostles, on the other hand, cared little for the Gentile world, except that they rejoiced at the glad news of the great success of one who preached in the name of their revered Master and Lord, Jesus. A compact of mutual recognition was thus easily effected, the more so as the congregation of Jerusalem was under no obligation whatever and received considerable alms from their unknown brethren of the Gentile churches. The report in the Acts of the apostles stands in many respects in flat contradiction to the version given by St. Paul, but we need not hesitate to regard St. Paul's statements as direct evidence of historical facts, while the Acts of the apostles is a later compilation. It contains genuine sources of unquestionable value (the so-called *we*-passages), but is also filled with doubtful legends, and the redactor did his work with a definite and obvious purpose, which is apologetic in its tendency and attempts to prove that the authority of the Gentile Church has been derived from Jesus through the twelve apostles, a fact which becomes more than doubtful when considered in the light of St. Paul's own words.

We need not enter here into the conflict to which St. Paul alludes, but we can understand St. Peter's attitude when he became aware of the practical differences between the two Christianities. The conflict was unavoidable wherever Gentile and Jewish Christians came in closer contact. It never became a serious question, because after the destruction of Jerusalem the Nazarenes lived in inaccessible villages of Syria, and the Jewish Christians of the diaspora were like Paul partly under Gentile influence themselves and partly too weak to convert the rest of the world to their Judaism.

In all particulars the Nazarenes remained Jews and gave little heed to the Gentile world; but with the powerful development of the Gentile Church they came to be regarded as a sect of heretics. Epiphanius¹ tells us that after their flight from Jerusalem 70 A. D. they lived in Decapolis (Pella) and Basanitis (Cacabe), Coele-Syria. Being poor and living in obscure and almost inaccessible

¹ Pan. xxix. 7.

parts of Syria, they were little heeded and are rarely mentioned in patristic literature. For all we know there may have been, at least prior to the destruction of Jerusalem, Nazarenes who did not believe in Jesus as the Messiah, and it is certain that they were otherwise Jews. We read in the Acts that there were disciples of John left, but it seems that they were soon absorbed by the Jewish Christians; still some may have kept to themselves, and Origen¹ actually states that the Ebionites are divided into two sects, one of which denies the virgin birth of Jesus. Eusebius² also discriminates between those who do and others who do not acknowledge the supernatural origin of Christ; and lastly Jerome³ says that "anxious to be both, Jews and Christians, they are neither the one nor the other." They had a gospel of their own, called "the Gospel of the Hebrews,"⁴ which is sometimes quoted by Church Fathers in refutation of their heresies and was lost when the Nazarenes disappeared. The problem whether Jewish Christians or Gentiles were the true followers of Jesus was finally disposed of through the disappearance of the Nazarenes.

EDITOR.

¹ *Contra Celsum*, V., 61. ² *H. E.*, III., 27. ³ *Ep.* 79.

⁴ The theory that the Gospel of the Hebrews is older than the canonical Gospels and one of their sources, is now abandoned for good reasons. It is presumably a late production written with the tendency of justifying the Jewish Christians, i. e., the successors of the Nazarenes, against Gentile Christianity.

LITERARY CORRESPONDENCE.

FRANCE.

EVEN a partial analysis of the erudite and beautiful work of M. AD. COSTE, *L'expérience des peuples et les prévisions qu'elle autorise*, would make too great demands upon the space at our disposal. This new volume is the sequel to the *Principes d'une sociologie objective*, of which I have already spoken at some length. M. Coste studies here the evolution of all the social phenomena that constitute in his view the material of sociology, as *government, production, beliefs, and solidarity*. He exhibits the concordance of these four great "functions,"—a concordance or correlation which, as is well known, he conceives to be subject to the influence of a single initial and propulsive fact,—viz., *population*.

From this last point of view, supposing men to have emerged from the state of savagery, the stages of social progress are marked by the following creations: (1) Castles and villages; (2) Towns placed over villages; (3) Provincial capitals placed over towns and villages; (4) State capitals placed over large cities, towns, and villages; (5) Federal capitals placed over state capitals; etc., etc.

The series of sociological laws which it seems to him possible to formulate has the following form:

1. The law of assimilation, conformably to which the human species tends to unification.
2. The law of correlation between the social state and the population.

These are the two primary laws which determine the evolu-

tion, which is then subject to the following four secondary laws, severally governing the social functions:

3. The law of the segregation of power.
4. The law of the division and organisation of labor.
5. The law of the progression of knowledge (Comte).
6. The law of the equalisation of social conditions.
7. A law which regulates the concordance of these four individual evolutions, without which one should not be justified in speaking at all of "sociological laws," or "necessary relations having their origin in the nature of things," as the phrase of Montesquieu goes.

8. A law which regulates the persistence or survival of modifications of formal functions.

M. Coste predicts the installation of a social *régime* which shall exhibit a more compact solidarity and shall be the product of a species of federation, not geographic but organic, and composed of corporations and syndicates, all of which are interested in maintaining the independence of a higher tribunal which shall assure them their liberties and their rights.

* * *

Less finished and less strongly imbued with the genuine significance of sociology is the work of M. A. BRASSEUR, *La question sociale, études sur les bases du collectivisme*. According to M. Brasleur, the upward march of individualism is a concomitant of all real social progress. Man is led by his own interests to bring his subjective or personal aims into conformity with the objective or general aims. Altruism, in which the socialists find a new spring of action, is but a metaphysical idol. Altruism tends to destroy the originality of the human molecule, whilst individualism is part and parcel of the principle of life itself and the incarnation of natural law. The ideal of mankind should be the exaltation of the ego by elevation, not by elimination.

After this, it seems contradictory for the author to relegate economic factors to a second place in order to give the first place to the psychological elements, as also for him to present the social question as a moral question. He has committed the fault of not

distinguishing between a chimerical conception of altruism and the principle of human sympathy, which is no less eternal and efficacious in its workings than the principle of *primum sibi*. The insufficiency of his psychology annuls his conclusions and affects the value of his criticisms. His analyses are inadequate, and his doctrine is not capable of precise limitation.

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The essay of M. G. DUMAS, on joy and sorrow (*La tristesse et la joie*) is the most important study of an affective state that has yet been made. M. Dumas does not proceed by the customary way, which is to search for cases in point, to formulate their conditions, and thereupon to proceed immediately to generalisations. Instead of studying the same affective state in many different individuals, he has been led by preference to consider many different affective states and emotional variations in the same individual, and it will not be denied that he has been perfectly justified in proceeding in this manner.

I cannot take up in detail the numerous analyses and observations contained in this work. I shall simply note that M. Dumas, who is at variance here with M. Ribot, does not conceive joy and sorrow to be "general emotions," having no definite sphere of their own and diffusing themselves throughout all the manifestations of the affective life, but on the contrary as "special and particular emotions," having their special reactions.

As to the nature of these affective states, the question which here arises is the same as that raised by the much-debated theses of Lange and William James. M. Dumas discusses these theses more profoundly than has been done before; showing what they have in common and what they have individually. For William James, emotion is not only physiological in character, that is to say, dependent upon the condition of the organism of which it is the conscious expression, but it is also of peripheral origin. In other words, emotion is not a psychical phenomenon having a distinct seat in the brain, but a genuine phenomenon of sensibility having its source, like all sensations, in the periphery of the body

and perceived in the cortical centers like all other sensible excitations.

M. Dumas admits that sentiment is physiological in character, but without failing to recognise that it is difficult to explain why this or that vaso-motor condition is associated with this or that idea or perception. But he withholds his assent to the doctrine of peripheral origin. If that origin is in no wise subject to doubt for states of passive sorrow and serene joy (for which the clinical proofs abound in his work), the thesis does not possess the same likelihood in cases of agreeable or painful *excitation*. It appears, on the contrary, that "pleasure and pain in their acute form are not the effect but the cause of the majority of peripheral reactions that characterise suffering and exuberant joy." But it is possible, he remarks, that the excitation may provoke two species of reactions: the first being primitive and reflex, as well as the determining cause of pleasure and pain; the other being automatic and secondary and therefore the consequence of pleasure and pain. On this hypothesis, James would be right, throughout. Properly speaking, sensibility would never exist in the nervous centers. But this new hypothesis, which would have the advantage of bringing unity into the theory of emotion, is at direct variance with facts of considerable significance, and would seem sometimes to be contradicted even by common observation.

I must cease here with my rapid *résumé* of this work. What I have said will, I hope, be sufficient to show the importance and the interest of the work of M. Dumas.

* * *

M. HENRI BERGSON gives us in his *Le rire, essai sur la signification du comique*, an excellent and attractive work, in which he essays to group about a single general point of view the various theories which have hitherto been propounded in explanation of humor. Humor is born, according to him, whenever we discover in a man an "articulate Jack-in-the-box"; wherever we find automatism and rigidity where there ought to be flexibility,—whenever mechanism has supplanted life. To this principle he refers all the various species of humor; he points out the application of

this principle in the humor of forms and of movements, then in the humor of situations and of words, and finally in the humor of character. He has performed his task with moderation and acumen, employing a great wealth of illustrations and closely studying the different processes by which wags and buffoons, punsters and wits, novelists and playwrights, have in all ages produced humor and provoked laughter. His study is certainly the most comprehensive that I know of, and M. Bergson has succeeded in explaining by his principle a greater number of cases than any other author. But, if I am not mistaken, there is always room for the generally accepted theory which connects laughter with the non-conformity or incongruence of two ideas, with this difference, that the nature of this incongruence is here always specified, and that the same general type of nonconformity is found in all possible situations.

M. Bergson has also sought to determine the "social value" of laughter. Laughter, which is the enemy of all rigidity and of all automatism, whether of mind or body, constitutes in his eyes a punishment for the existence of these deficiencies, which actually diminish in some measure the social value of a man. Comedy would thus occupy a position between social life and art; it would be artistic in one phase and moral in the other. But this is a consideration the development of which I should prefer the reader to follow in the book itself. Many novel and curious remarks will also interest him there, remarks upon the distinction between tragedy and comedy, upon the characteristics of classical comedy, upon the analogy of the absurdity of the comical personage with the absurdity of dreams.

* * *

M. LOUIS PROAL has written an admirable book in his *Le crime et le suicide passionnels*, a work based on the solid experience of a civil magistrate. It is of high interest to psychology for the analyses which it contains, and to literary criticism for the comparison which it makes of the heroes of the theater and the novel with the observations of the judiciary. I have no criticisms to prefer save with respect to points of pure doctrine, and accept without reserve

the general conclusions of M. Proal, either when he is condemning love outside the pale of marriage and is portraying the dangers of "sensual" love, or when he is castigating the crime of seduction in all its forms and is pleading for conjugal fidelity; when he denounces the evils which result from our literature, when he takes to task the increasing laxity of moral instruction in families, or when he emphasises the favorable influence which religious ideas exercise upon the moral life of woman, in particular; and finally when he appeals to the laws, which may be said to contribute greatly to the formation of habits and to prepare the way for good morals in a wisely regulated state.

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M. L. BRUNSWICQ publishes an *Introduction à la vie de l'esprit*, a work of high character, divided into five chapters which treat of conscious life, scientific life, esthetic life, moral life, and religious life.

* * *

M. G. BONET-MAURY gives us a *Histoire de la liberté de conscience en France depuis l'édit de Nantes jusqu'à juillet 1870*. This is a thoroughly meritorious and trustworthy work of history, written in a generous spirit and interesting to read. The author is of opinion that "there has always been in every epoch of the world's development a rigid correlation between political liberty and philosophical or religious liberty, so that one may lay it down as a principle that liberty of conscience has no worse enemy than political despotism, nor a better support than freedom of speech and of the press." This is doubtless true, yet it is incumbent upon us to assign to these words, "despotism," "liberty," etc., their just valuation at each moment of history, and to take into account the necessities of contemporaneous politics. Other writers might explain very simply and even very brutally why France has not become Protestant and why liberty of conscience has always been difficult to gain; one has even reasons for thinking that this conquest has not been easier since the triumph of Protestantism. From the point of view of sociology the question perhaps does not present itself in the terms in which M. Bonet-Maury has presented it to us; the

psychological error and the theological error to which he attributes religious intolerance as to its two principal causes, appear to me to be at most labels beneath which are hidden more positive and precise reasons. But these reservations which I merely indicate here, without developing them, detract nothing from the real historical interest of this excellent work.

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With M. L'ABBÉ CLODIUS PIAT and his book on *Socrates*, with M. THÉODORE RUYSEN and his book on *Kant*, with M. LE BARON CARRA DE VAUX and his book on *Avicenna*, is inaugurated a new collection of works treating of the great metaphysical thinkers of humanity and bearing the title *Les grands philosophes*,—a collection which will be issued under the editorship of M. Piat, and of which the express purpose is to determine the contributions made to human knowledge by the different great masters of philosophy. The three volumes which are offered us to-day merit equal attention, but the novelty of the subject will doubtless lend greatest interest to the work on *Avicenna*. This book has been written with impartiality, and is replete with material. For my part, I always welcome books devoted to the brilliant civilisation of the Arabs, which Littré has called the "Lesser Renaissance," and without which a connecting link in the history of civilisation would be missing. M. de Vaux gives us useful information concerning the origins of this civilisation, or concerning the ante-Islamic period; and the attractiveness of these historical pages is not diminished by the analysis which the author gives of the doctrines professed by the Islamic philosophers. In this analysis of doctrines there are traces of concern apparent to restore Scholasticism to a place of honor; and in fact the new collection is self-confessedly a contribution to the Neo-Thomistic movement. Yet this new endeavor on the part of French Catholicism is not for us to decry, for we are of those who attach a high importance to the discussion of philosophic questions, when nobly and learnedly conducted.

* * *

Two important works in the history of literature deserve to be noticed. The first is by M. H. OUVRÉ, *Les formes littéraires de la*

pensée grecque, a work exhibiting great learning and attractiveness, though sometimes subtle and slightly obscure, in which the author has attempted to discover and to interpret the concatenation of forms in which the literary thought of the Greeks has expressed itself. The second is by M. G. RENARD and entitled *La méthode scientifique de l'histoire littéraire*, a meritorious production in which M. Renard expounds the principles which to his mind should direct historians of literature, and applies these principles to the history of French literature as a totality. M. Renard is distinctly opposed to the employment of the deductive method which was so much used by Taine and which is equivalent, as I have often remarked, to the assumption of some single arbitrary fact of which all others vary as a function and which is therefore considered as the sole determining cause of all the phenomena involved. To proceed inductively, that is to say, in the present case, to establish natural groups in the development of literary life, to assign the formulæ for these groups, to show their points of connexion with surrounding conditions, and to determine if possible the laws of the transition of one form into another: such is the general plan of the work. I restrict myself to the foregoing indication only of the contents of this work, and seize the present opportunity of recommending to my readers, and perhaps it might be well also to do the same for M. Renard, the broad plan of study which has been drawn up in the *Compendium* recently published by Gayley and Scott and issued by Ginn & Co., of Boston.

Finally, I may simply mention in this connexion the work of M. OSSIF-LOURIÉ, entitled *La philosophie sociale dans le théâtre d'Ibsen.*

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The third volume of the *Année sociologique* (the volume for 1898-1899) is of no less interest than its predecessors. It contains three original memoirs (I forego the mention of the notices and reviews of books). The memoir of M. F. RATZEL, *Le sol, la société et l'état* gives us a valuable *résumé* of the socio-geographical theory of which M. Ratzel is the most accredited representative. The memoir of M. G. RICHARD, which bears the title *Les crises sociales et*

les conditions de la criminalité, gives a good criticism of two antagonistic theories, one of which attributes crime to the pathological condition of the individual and the other to the condition of society. According to M. Richard, criminality is probably the consequence of a moral retrogression which makes parasites of certain individuals; but the cause of this retrogression should not be sought outside of the social *milieu*. It not being permissible to consider criminality as the survival of a prior atavistic morality, it is necessary to attribute it to some crisis of society,—which always intervenes whenever the social discipline is forced to undergo a transformation.

M. STEINMETZ is the author of an attempt entitled *Classification des types sociaux et catalogue de peuples*, a preparatory work which he correctly believes to be indispensable to the fruitful prosecution of sociological research. He criticises the classifications which have hitherto been propounded and proposes a new one of his own, in which there are *four branches* springing from the progressive character of the intellectual life, and *ten classes* based upon the general character of economic life. The catalogue of peoples, such as he conceives it, would be drawn up in terms of a special notation.

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The *Année philosophique* for 1899 shows a new name on its title-page, that of M. HAMELIN, who makes his *début* in this number with an essay on *Induction*; M. RENOUVIER treats of *Personality*; M. DAURIAK treats of the *Method and Philosophy of Shadworth Hodgson*; while M. PILLON furnishes a study of the evolution of idealism in the eighteenth century.

M. DESPAUX in his *Genèse de la matière et de l'énergie* attacks the problem of the origin and destiny of worlds. Matter alone, in a state of extreme diffusion, or rather the impenetrable ether, is, according to M. Despaux, sufficient to explain both matter commonly so called (that is, matter endowed with weight) and energy in all its forms. This view does not differ greatly, at least as to its primary and most general datum, from the doctrine of Mme. Clémence Royer, of which we spoke in the last *Monist*.

A word in conclusion upon a little essay by M. L. FAVRE, *La*

Musique des couleurs,¹ the first volume of a series bearing the title *Bibliothèque des méthodes dans les beaux-arts*. Basing his opinion upon the analogy of sounds and colors, M. Favre affirms the possibility of a species of painting which should resemble music. Painting, which is an immobile art is, according to him, susceptible of being made a mobile art. This extension of its domain would require first the establishment of a gamut of colors founded upon principles corresponding to those of the gamut of sounds. It would then require the invention of certain ingenious schemes of disposing these graduated colors so as to realise the new ideal. It may be objected that the analogy between the scale of colors and that of sounds is far from being perfect, and certain consequences which I have not the time to point out here follow from the very fact that two principles, which might be termed *lighting* and *coloring*, intervene in the establishment of gamuts and series of gamuts. On the other hand, it is not easily seen how the rational employment of a notation of colors could ever give anything else than a simple "play of colors," and how one could pass from the play of illuminated fountains for example to a production of genuine art. In fine, I have my doubts relative to the advantages of any collaboration or synthesis of the arts having in view the increase of their powers of expression. But these criticisms, which I have set forth at greater length in the *Revue philosophique*, do not prevent me from appreciating the merits of the work of M. Favre, who is a talented as well as an ingenious writer.

LUCIEN ARRÉAT.

PARIS.

¹ Paris, Schleicher, publisher. All the other works mentioned are published by F. Alcan.

COMMUNICATIONS.

THE PROJECTED INTERNATIONAL MUSEUMS OF SCIENCE, EDUCATION, AND THE ARTS, IN PARIS.

The buildings of the foreign nations at the Paris Exposition of 1900, which were erected along the left bank of the Seine and went by the name of "The Street of the Nations," formed a magnificent row of structures, and the laudable idea was suggested to a number of public-spirited Parisians to preserve the more substantial and beautiful of these buildings as places of shelter for international museums of science, education, and the arts, the design being to give permanent synthetic form to the intellectual and moral achievements of the departing century. The character and standing of the patrons of this project are of themselves a guarantee of its success. Four of them are ministers, namely, MM. Millerand, Delcassé, Leygues, and Baudin; and in addition the names of M. Alfred Picard and M. Delaunay-Belleville are also associated with the enterprise. The committee which has been appointed to carry out the details of the project is a representative one and in every way indicative of the liberal and lofty spirit of the undertaking; among them being Prof. Patrick Geddes, MM. Léon Bourgeois, Liard, E. Lavis, François Coppée, Duclaux, Prince Roland Bonaparte, Louis Herbette, Charles Normand, Émile Bourgeois, Georges Cain, Schrader, John Labusquière, General Sébert, Dr. Martin, G. Moch, and M. Youriévitch.

The question of the possibility of saving the beautiful buildings of the Street of the Nations was submitted to an expert architect, M. Louis Bonnier, who found upon examining the structures that the pavilions of the first of the two rows which stretched along the Quai d'Orsay, with the exception of four, could be easily repaired and made to last ten years at least. The Italian, Turkish, Spanish, and Servian buildings will have to be removed. The new Street of the Nations will comprise, therefore, twelve structures; to wit, the buildings of Greece, Sweden, Monaco, Finland, Germany, Norway, Belgium, Great Britain, Hungary, Bosnia, Austria, and the United States. These form, or will be made to form, a single row; all the other structures of the original Street of Nations having with one exception been either removed or destroyed. The committee has already entered

into communication with the commissioners-general of the twelve countries interested, and in nearly every case the negotiations have been carried to the stage of virtual completion. Sweden and Norway have surrendered their buildings for a nominal indemnity. The Finns have given up their structure unconditionally, and the Germans have made an outright gift of their pavilion to the committee. Some of the other buildings have already been sold to contractors, but these will be recovered at slight cost. The sanction of the city of Paris to the project has yet to be obtained, and about \$200,000 will be required for restoring and strengthening the buildings. But the consent of the city and the money will be soon forthcoming.

The museums to be installed in the various buildings have been determined in a measure by the peculiarities of national development. The United States, for example, has been accorded the high honor of having the museum of comparative education. The program says :

"The United States appears at the present moment as a striking embodiment of the idea of progress, first of material progress (for no people has made such rapid strides in all the pathways of industry and commerce), and secondly of intellectual and moral progress. The beautiful in art, the true in science and education, the good in all orders of social improvement, have been realised by this youthful people with a boldness of enterprise and an energy of execution that command the admiration of the Old World. . . . We offer to the United States, therefore, the honor of sheltering the museum of comparative education."

In the handsome building of Austria will be installed a Panoramic Survey of all the World's Fairs that have been held between the years 1798 and 1900. This museum will contain iconographic representations of all the International Expositions of the past, and afford thus an historical tableau of the progress of art, science, and industry during the entire century. And not only the actual expositions of the past, like that of the Crystal Palace in 1851 and that of Chicago in 1893, but also all the unrealised projects for World's Fairs, will here find representation.

The museum of peace will be lodged in the picturesque pavilion of Bosnia, the royal building of Hungary will shelter the museum of the history of civilisation; that of Great Britain the museum of hygiene and bacteriology; the museum of public art will be placed in the Belgian building; the pavilion of Norway will shelter the fisheries, navigation, and Arctic exploration exhibits; the German building will be consecrated to scientific societies and social economics; the odd and picturesque building of the Finns will contain the museum of geography; that of Monaco will be reserved for the oceanographical and biological museums; while the pavilion of Sweden will be appropriately devoted to the museum of manual training, and the pavilion of the Greeks to that of classical archæology.

The talents and services of some of the most distinguished experts in the above-mentioned departments of human industry and thought have been placed at the disposal of the committee. Dr. A. J. Martin, director of the department of hygiene, has signified his willingness to install in the British pavillion the collections

of Pasteur and Lister; Prince Roland Bonaparte and M. Schrader have promised to organise the museum of geography, M. E. Lavisse that of history, and MM. Georges Cain, John Labusquière, Charles Normand, and Charles Simond, that of public art. According to the statements of a recent number of *Figaro*, every day is bringing forth some new project, evidences of new sympathy, and new assistance. It is sincerely to be hoped that the aspirations which have here taken so tangible and noble a form will be speedily realised, and that the beautiful Street of the Nations will remain as a permanent and inspiring monument to international artistic and intellectual effort.

BOOK REVIEWS.

FACT AND FABLE IN PSYCHOLOGY. By *Joseph Jastrow*, Professor in the University of Wisconsin. Boston: Houghton, Mifflin & Co. 1900. Pp. 375. Price, \$2.00.

Professor Jastrow has done a real service to his chosen science and to the cause of sound thinking generally by reprinting in book form this series of articles written on various occasions but informed by the common aim of aiding the intelligent layman to distinguish the method and discipline of the serious study of mental phenomena from the superstitions and charlatanisms that are fast bringing the very name of psychology into disrepute.

The book is in the first place a convenient and readable history in outline of those curious movements of opinion indicated by the terms occultism, spiritualism, telepathy, psychical research, mesmerism, hypnotism, and the like. But it is much more than this. While entertaining us with the performances of Slade the medium and the peregrinations of the earthly and astral bodies of Madame Blavatsky, or summarising for us the results of investigations conducted by the Society for Psychical Research, Professor Jastrow deftly supplies the antidote in the form of a convincing psychological analysis of the mental habit that fosters and is fostered by such delusions, and further confirms our sanity by frequent administrations of fortifying logical tonic. He will of course not produce the slightest effect on the great mass of those who wish to be gulled, or upon minds too soft to retain the impress of an argument.

But there is a very considerable number of educated men who are genuinely bewildered by the difficulty of distinguishing between the legitimate wonders of modern physical science and the startling things reported by those who profess to be cultivating the extreme borderlands of the science of mind. At first blush wireless telegraphy or the telephone are as surprising as telepathy. The man in the street does not understand the mechanism of the one, and he has no time to study the ponderous tomes in which is collected the alleged evidence for the other. Where there is so much smoke, there must be some fire, he thinks. He is in the habit of accepting the opinions of experts and of respecting the opinions of those who back their beliefs with money. If Christian Science can build magnificent

marble temples, Christian Science must be a reality. If Professor James of Harvard believes in Mrs. Piper, and learned societies print and gravely discuss the drivellings of "Dr. Phinuit," it would seem that there *are* more things in heaven and earth than are dreamt of in our philosophy.

To this attitude of mind Professor Jastrow's book may bring real illumination.

After a general introduction on the various forms of the modern Occult, he subjects the "problems" of Psychical Research to a close scrutiny and shows that, so far as they are questions legitimately to be asked, they fall within the field of scientific psychology: "The differentiation of a group of problems on the basis of unusualness of occurrence, of mysteriousness of origin, of doubtful authenticity, or of apparent paradoxical or transcendent character, is as illogical as it is unnecessary." The chapter on "The Logic of Mental Telepathy" brings out the subjective character of our recognition of coincidence, its dependence on the accidental direction of interest, and illustrates with many apt anecdotes the *a priori* probability of the multiplication of coincidence in an age of incessant mental activity and wide-spread dissemination of identical ideas and information. It would be easy to collect an enormous mass of evidence in support of the thesis that quarrels and divorces are caused by opposition in the horoscope, and are most frequent between those whose birthdays fall six months apart. But the scientific man would be under no obligation to examine such evidences, because the hypothesis is illegitimate and contradicts the fundamental conceptions underlying the totality of our knowledge. The same may be said of the hypothesis of telepathy as an explanation of coincidence.

"The Psychology of Deception" explains a large number of the typical performances of conjurers and mediums as they appear to the spectator and as they are worked behind the scenes. The evidence is overwhelming that the skilful conjurer can beat the medium on his own ground. Why in spite of this the medium retains his following is explained in the Psychology of Spiritualism, an exhaustive analysis of the mental conditions of credulity and self-deception. One of the chief of them is the over-confidence of the average man in his own untrained perceptions, his failure to recognise that he is about as competent to form an opinion as to whether what he sees at a *séance* is explicable as conjuring or not, as he is to pronounce on the genuineness of a Syrian manuscript.

There is one aspect of the matter on which I could wish that Professor Jastrow had been even more outspoken, although it is easy to read between his lines, and it must be admitted that his book gains greatly in practical persuasiveness from its judicial and moderate tone. I refer to what Huxley calls "the downright lying of people whose word it is impossible to doubt." This type of explanation is out of favor to-day, and it is undoubtedly a tactical error to have recourse to it in controversy. Nevertheless, no analysis of the "phenomena" of occultism is adequate that ignores the plain fact that such sense of truth as we possess has been developed in

connexion with the practical business of life and is rudimentary in relation to the marvellous and the supernatural. Professor Jastrow says: "Be it distinctly understood that we do not for an instant impute wilful perversion of the truth." And Mr. Furness speaks of the "honest men and women" at his side who solemnly affirmed that they saw what they did not and could not see. The experienced medium, if he frankly spoke his mind, would probably reply with the worthy Dr. Caius: "Honest? Vat shall de honest man do in my closet? Dere is no honest man shall come in my closet!" This of course does not mean that all educated witnesses to impossible phenomena are dishonest. But it does mean that the presumptions are rather against them than in their favor.

Professor Jastrow's book has sent me back to the two immortal treatises of Lucian, the *Philopseudes* and the *False Prophet*. "Why," asks Lucian at the outset of the former, "why is it that the great mass of mankind are so mightily given to lying when they have nothing to gain from it except the mere delight in the incredible and the untrue?" That is what I call a bold entry into the heart of the subject. The collection of ghost stories and the account of the career of Alexander of Abonitichos that follow present parallels to the greater part of the phenomena of modern occultism. Madame Blavatsky's shrine at Adyar from which were mysteriously issued answers to letters placed within its recesses, is the counterpart of the oracle of the sacred serpent operated by Lucian's hero among the innocent Paphlagonians. The brazen tablets of the Book of Mormon dug up at the opportune moment are an infringement of one of his patents. He had little to learn from our modern adepts in the arts of opening sealed letters, producing materialisations and optical illusions, or surreptitiously collecting the family and personal gossip, the fragmentary revelation of which in obscure and ambiguous phrase amazes and overawes the easy dupe. Haunted houses, mystic rapping, levitations, bewitched broomsticks, telepathic premonitions are described in beautifully defined examples. The fallacy of analogy to which Professor Jastrow has devoted a chapter which is an interesting supplement to the well-known section of Mill's Logic, is illustrated by the employment of the hide of a deer to cure rheumatic or gouty affections of the feet,—for is not the deer swift? And Lucian's conclusion of the whole matter would, I doubt not, be accepted in substance by Professor Jastrow. "To defend one's mind against these follies a man must have an adamantine faith, so that, even if he is not able to detect the precise trick by which the illusion is produced, he at any rate retains his conviction that the whole thing is a lie and an impossibility."

If challenged to produce the logical canons which justify this negative dogmatism and distinguish the wonders of science which we accept on testimony from those of occultism, the testimony to which we reject *a priori*, I should say:

1. The one are verifiable at will under strictly definable conditions. The other are not.
2. The one conform to the principle of objective material continuity as ex-

pressed in the laws of the indestructibility of matter and the persistence of force. The other do not.

3. The evidence for the alleged phenomena of occultism violates the principle of continuity and rational order in the development of human knowledge. Our knowledge of the X rays, for example, has been attained by a continuous progress every step of which lies before us in the history of science. We have every reason to believe that this is the law of all genuine discovery by the human mind. There is an overwhelming presumption against "discoveries" which both by their methods and their authors are cut off from this rational relation to the inherited totality of human knowledge. No one of the canons implied in these statements is perhaps a metaphysical or mathematical certainty. But they are all supported by a weight of presumption that has been accumulating in geometrical ratio for centuries. There is very little if any presumption in favor of either the competence or the entire good faith of human testimony to isolated and unusual occurrences. Such testimony therefore cannot create even a *prima facie* case for investigation until the alleged facts can be reproduced at will under conditions that absolutely exclude the more probable hypotheses of fraud or self-delusion.

Space fails me to speak of the long and valuable chapter on Hypnotism and its antecedents. The line between fact and fable is especially difficult of discernment for the layman here. Professor Jastrow hints, what I have always believed, that there is a considerable admixture of fable in the practice as well as in the theory of the school of Charcot. I hope that he will find occasion to speak his mind more fully. The study of involuntary movements makes visible to the eye as charted by an ingenious mechanism the unconscious movements of the hand and arm in the line of the direction of attention, thus proving conclusively that one notorious form of mind-reading may very well be muscle-reading. Two or three other chapters lie a little apart from the main theme of the book. Especially interesting is the account of Helen Keller's dream life in "Dreams of the Blind." In using the form *propagandum* has not Professor Jastrow himself fallen a victim to the fallacy of analogy of which he writes so instructively ?

PAUL SHOREY.

AÇVAGHOSHA'S DISCOURSE ON THE AWAKENING OF FAITH IN THE MAHĀYĀNA. Translated for the first time from the Chinese version by Teitaro Suzuki. Chicago: The Open Court Pub. Co.; London: Kegan Paul, Trench, Trübner & Co., Ltd. 1900. Pages, xiv, 160. Price, cloth, \$1 25 net.

Açvaghosha, as the author of the *Buddhacarita*, the famous poem on the life of Buddha, is well known to Western Buddhist scholars; but as the great Buddhist philosopher, who practically formulated the doctrines of the Mahāyāna school, he is almost unknown even to the best informed students of Buddhism. And the reason is plain. For, while the general study of Buddhism has made great advances owing to our increased knowledge of Pāli and Sanskrit, the history of its doctrinal development has never been thoroughly investigated. This latter task requires

great accumulations of material and a perfect command of the various Oriental languages in which these doctrines are recorded. Work covering so enormous a field demands unremitting and intense labor on the part of many talented scholars for a life-time. But we have not yet reached this stage in our Oriental researches.

To the Far-Eastern students of Buddhism, however, the name of Aćvaghosha is perfectly familiar, and his position and significance in the history of Buddhist philosophy are duly appreciated. The theory most prevalent and almost universally accepted as an established fact among Western Buddhist scholars concerning the founder of Mahāyānism, is that Nāgārjuna was the author of the Prajñā-pāramitā doctrine, on which they think the foundation of Mahāyānism was laid. As a consequence of this fallacious hypothesis two grave errors naturally followed: first, the disregarding of the doctrinal development that took place previous to Nāgārjuna and thus paved the way for him; secondly, the identification of Mahāyānism with the doctrine of the Prajñā-pāramitā, which forms only a special branch of the former.

Among the many Buddhist thinkers prior to Nāgārjuna—and there doubtless were many—Aćvaghosha stands forth most conspicuous. It was he really that gave a fixed direction to the général Mahāyāna movement emerging from the spiritual chaos which commonly follows after the disappearance of a great leader of thoughts. The religio-philosophical work of Aćvaghosha now lying before us in its English form as *The Awakening of Faith in the Mahāyāna* remains a monumental work in the intellectual development of Mahāyānistic Buddhism. Yet apart from this, the book has a quite independent interest. For, according to the present translator, it is an attempt at unifying all the philosophical doctrines existent in India in Aćvaghosha's time, such as the Sāmkhya, the Upanishad, the Vaiśeṣika, and others, and so it will prove very important to students of Indian philosophy generally.

Aćvaghosha most probably lived in the latter part of the first century before Christ, and seems to have been spiritual adviser to Kanishka, the great Gondophorean King of North India, and also to have been in some connexion with the Third Convocation in Kashmir. The present book was written by him presumably in the later years of his life and presents his maturest thoughts.

After Aćvaghosha, Mahāyānism made steady progress along the lines sketched by him. The theory of the Prajñā-pāramitā or the Mādhyamika school of Nāgārjuna is a development from Aćvaghosha's conception of the absolute Suchness (*Bhūtatathatā*); the idealistic, epistemological philosophy of Asanga and Vasubandhu, known as the Vidyavāda or Yogacāra school, which was hotly engaged in war with the Mādhyamika, is also a consequence of Aćvaghosha's conception of the relative Suchness, i. e., *Alaya-vijñāna*. We need not enter here into its further fruitful evolution in Chinese Buddhist speculations.

According to the translator of the present book Aćvaghosha's philosophical merit seems to consist chiefly in his introduction of the three following doctrines

into Buddhism: (1) The conception of Suchness that laid the foundation of the Dharmakâya theory in the Mahâyâanism; (2) The theory of the triple personality, which, though closely resembling the Christian notion of trinity, savors more of idealism; (3) The doctrine of salvation by faith, which also appears in the *Bhagavad-gîta*, and which constitutes at present the corner-stone of the Sukhâvati sect in Japan and China.

The present English translation of Añgavaghsa is from the two Chinese versions made in the sixth and the eighth centuries of the Christian era. Unfortunately, these are now our only sources, the original Sanskrit having long been lost to the world. In India there is scarcely any hope of discovering it, as the translator surmises, but in some ruined monasteries of Nepal it may be found some time in the future, though so far nothing encouraging us to this belief is known.

The translator has made a careful comparison of the two Chinese texts. The book is furnished with an elaborate introduction treating of the life of Añgavaghsa, the history of the Chinese versions, an outline of the author's philosophy, and also with numerous comments and a glossary explaining many difficulties for English readers. The translator confidently believes he has thrown much light on certain points in the development of Mahâyâanism that have hitherto been left in utter obscurity.

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SOCIAL JUSTICE. A Critical Essay. By *Westel Woodbury Willoughby, Ph. D.*

Associate Professor of Political Science in the Johns Hopkins University,
Author of *The Nature of the State, Rights and Duties of American Citizenship*, etc. New York: The Macmillan Company. London: Macmillan & Co., Ltd. 1900. Pages, xii, 385. Price, \$3.00.

The aim which the author of this work has in view is the ascertaining of the general principles of right which form the basis of the ethics of particular social systems. The task he has undertaken is "the determination of the absolute value of social institutions," and the statement in definite form of the principles "which should govern men in their efforts to adjust their lives to the highest ideals of right and justice." Professor Willoughby does not claim to have developed a new system of ethics. He has adopted in the main the position of T. H. Green and the later writers of his school, but he has endeavored to make a more comprehensive application of transcendental principles to the concrete problems of life than has hitherto been done. His special purpose would seem to be, judging from a remark made in the Preface to his work, to supply the material for enabling judgment to be passed upon "the justice of the demands so powerfully put forth in our day by those large bodies of thinking men and women who, grouped under banners anarchistic, socialistic, or communistic, are demanding a radical readjustment of social and industrial conditions."

The value of the inquiry into the general principles of right on which the whole discussion turns is the special topic of the opening chapter of the present work.

The author has, however, some introductory statements which are deserving of notice. Thus, he points out that no condemnation of the existing social *régime* should be listened to until the proposed substitutive scheme has been shown to be ethically sound. The social reformer has to consider carefully, therefore, which of the "popularly alleged canons of distributive justice have in them the elements of truth and rationality." The analysis of the idea of justice as an abstract conception is then what Professor Willoughby first undertakes, preparatory to the application of the conclusions arrived at to the concrete problems of social life. He commences by tracing the modern idea of justice to Kant's great work, which makes the individual human reason the legislative source of moral law, because it is governed by the principle that "only that can be right which accords with a principle which we can wish to be a universal one." Hence arises the idea of natural right, which is synonymous with what the individual, as a rational moral being, may claim from others as rational moral beings. But the only rights that may be claimed as natural, in the sense of being innate or essential, are "those which are necessary for the realisation of one's highest ethical self." There are certain limitations, however, based on obligation to right action, and on disposition and ability to use properly any privilege obtained, which show that there are no absolute rights such as ethical philosophers have insisted on. If any right were absolute it should be granted to every person as such, whatever their capacity for ethical development, and the evil that would follow such a course justifies the assertion that all rights are purely relative.

But if no laws of justice can be formulated which may be universally applied without leading to evil, what are the positive results obtainable? The answer given by the author to this question may be stated in his own words. He says: "In the first place in demonstrating the impossibility of framing absolute rules of justice, the necessity will be emphasised of bringing each of our acts to the bar of reason, and of determining in each case, not simply its formal accordance or non-accordance with some previously accepted rule of conduct, but whether as a matter of fact, both the ethical motive which prompts its performance is a proper one, and its ultimate as well as proximate results will be such as will tend to advance the realisation of the highest good which our reason has been able to suggest." But, secondly, the impossibility of formulating absolute rules of practical morality will not prevent us from stating, after examination of the circumstances of the case, the rules of conduct which it seems to us will upon the whole produce the most justice. The author finally points out the importance of demonstrating that absolute rules of justice cannot be definitely formulated, "for by so doing we deprive dangerous revolutionary and socialistic schemes of the ethical support that is claimed for them."

The remainder of Professor Willoughby's work is devoted to the consideration of the several aspects under which the problem of social justice presents itself, treating first of the principle of Equality, then dealing with the theories of Prop-

erty right, and afterwards with the various canons of distributive justice including the Labor Theory. In conclusion he treats of the harmonising of freedom and coercion under the heads of "The Right of Coercion," "The Ethics of the Competitive Process," and "Primitive Justice." We cannot do more than state shortly some of the results arrived at. And first as to Equality, which the author divides into Spiritual, Natural, Civil, Political, Social, and Economic. In each of these senses Equality is repudiated as an abstract principle of justice, the true principle of desert being found in the idea of Proportionality, that is "the proportioning of rewards in each particular case according to some ascertainable conditions of time, place, or person." In relation to Property, the author points out that, although it is of general advantage that property rights should be recognised and protected, yet the law should ensure a more just distribution of wealth than at present exists. How this can be effected has to be determined, and after a careful examination of the Labor Theory the author declares that the solution of each of the economic problems it presents involves almost, if not quite, insuperable difficulties. The conclusion he arrives at from a consideration of other canons of distributive justice he states in the words of Wundt: "Only that kind of property is morally justified which is used for moral purposes. Whatever idle or wasteful use of property exists by throwing it away for selfish purposes, without any consideration for the welfare of society, is immoral." If it is asked in any particular case what justice requires, it can only be answered that no system of ethics can give such explicit guidance. All that can be said is that "in each instance where an act is required, one must examine it as to all its possible results, proximate and ultimate, objective and subjective, and then ask himself whether the given line of conduct is more calculated than any other possible line of conduct to advance the world toward the realisation of the highest ethical perfection."

We cannot refer further to the second Part of Professor Willoughby's work, which deserves careful attention by those who are specially interested in the social and economic problems now agitating the public mind. Its views are clearly stated and the problem with which it deals is discussed with fairness by the light of what has been written by the chief authorities on the subject.

C. S. W.

ESQUISSE D'UN ENSEIGNEMENT BASÉ SUR LA PSYCHOLOGIE DE L'ENFANT. By *Paul Lacombe*, Inspecteur général des Bibliothèques et des Archives. Paris: Armand Colin & Co. 1899. Pages, xiii, 212. Price, 3 francs.

This is another of the numerous text-books treating of education from the psychological side. M. Lacombe shares the opinion of nearly the whole world that our present system of education is destined to be replaced by a radically different one, the dominant principles of which are to be furnished by the psychology of the child. Instruction will be at once primary and secondary, and above all will be real and objective. It will prepare the child not for a special career, but for the career of a human being, and will be concerned with inculcating a knowl-

edge of the child's present environment, and with developing his mental and moral faculties. M. Lacombe has gone to the very root of the problem in saying that the object of adolescent education should be the making of *autodidacts* of children during the school period as well as subsequently to it; and that the educational procedure should be so conducted as to conform absolutely to this end. Of these methods he has given a sketch. They are based, he tells us, upon wide personal experience as well as upon the established principles of psychological development. He discusses the motives which are to be put into play in eliciting the activity of the proper faculties of the child for a given purpose, and lays it down as a principle that the order of the motives evoked determines the order and character of the knowledge to be inculcated. That order would give rise to the use of the following forms of natural expression: drawing and modelling, music, numbers, and written words. M. Lacombe has given in detail his methods for awaking interest. Where interest cannot be awakened, he would not teach, but would defer instruction until the requisite attitude was forthcoming. Upon this point he does not differ much from other advanced educators. As to languages, he is in favor of the modern languages in preference to the ancient. While his book as a whole offers nothing extremely novel, especially for readers of English, who now have at their command a very extensive literature on this subject, it nevertheless contains many individual observations which are new as to their form and therefore not without value.

EDUCATIONAL AIMS AND EDUCATIONAL VALUES. By *Paul H. Hanus*, Assistant Professor of the History and Art of Teaching, Harvard University. New York: The Macmillan Co.; London: Macmillan & Co., Ltd. 1900. Pages, vi, 211. Price, \$1.00.

The purpose which the author had in view in the preparation of this work, or rather of the lectures of which its chapters are reproductions, is stated in the preface to be a progressive attempt "to disentangle from the contemporary confusion, in both theory and practice, *our educational aims*, and to examine these aims in the light of present and future needs," that is the demands of modern life. The last three chapters treat of the professional training of the college-bred teacher and of the services to education of John Amos Comenius, the eminent Moravian bishop and teacher of the seventeenth century. The chapter which deals with the reforms introduced by Comenius is in some respects the most interesting portion of the work; as it shows that the curriculum and methods of education he inaugurated are substantially the same as the curriculum and methods now in use in the elementary schools both of Germany and of this country. He insisted on the establishment of schools open to all, both rich and poor, and the equal education of both sexes, saying: "Why should the female sex be excluded from the study of wisdom. . . . For they are created equally in the image of God, equally partakers of Grace and of the future kingdom, equally endowed with an active, recipient

spirit, often even more highly endowed than our own sex." The principles and methods set forth by Comenius in his *Didactica Magna* are as advanced as are his views in relation to the education of women. He introduced the study of history, geography, natural science, the elements of economics and politics, trades and mechanic arts, besides moral instruction, and he insisted on the principle, the importance of which is now fully recognised, that the necessary basis of all knowledge is experience, and therefore the senses must be used for the acquisition of knowledge wherever possible. As an aid to this, Comenius employed an illustrated school-book, the *Orbis Pictus*, which was translated and employed in many different countries, being the first step in the development of the illustrated text-books which form so valuable an adjunct in modern education. One of the most important features of this system was the co-ordination of all the subjects of study so as to form a single whole, and so that the higher courses of education should merely extend and deepen the instruction begun in the lower, regard being had to the capacities and tastes of each individual. Well may Professor Hanus ask whether modern educational reformers have anything more in mind than what was proposed by Comenius, with whom the object of the school is "to train the pupil in science and arts, to refine and perfect his speech, to assist him in discovering and developing his powers of body and mind, and to shape and dignify his character."

The key to the author's own particular views on the subject is to be found in his chapter on "Educational Aids and Educational Values." These are based on interest as incentives to mental activity in order to develop power, and the course of study should be such as will best promote the most important aims of education which are "to subject the pupil to the influence of social and ethical incentives, to render him responsive to the varied interests of life, and as he grows older, to discover what his permanent interests and capacities really are." The possession of social or ethical content is said to furnish the test of educational value, and hence Professor Hanus places in the front rank as subjects of study languages and literature, history and social studies, and finally art, all of which are needed for ethical and social enlightenment, and, even without interest, develop "the virtues of work through urgent extraneous motives." Mathematics, natural science, and manual training are declared to have only feeble educational value of any sort when without interest, although with interest they are useful for the development of habits of efficiency, which render their possessors useful and happy. But as the pursuit of those subjects does not involve necessarily the highest ideals, without which the usefulness and happiness of an individual are not of the highest order, they are inferior to the other group of subjects. This conclusion must be rather startling to those who have been taught to believe that mathematics is the chief handmaid of knowledge, and equally so to those who have come to regard manual training as its most valuable accessory. We must join issue with the author on that point, for although mathematics and manual training do not directly portray "the highest ideals of achievement, 'beauty, honor, duty, and love,'" they largely conduce to

the formation of that disposition of the mind which is required for those ideals to find their highest expression, and such may be said also in relation to natural science. It should be stated, however, that Professor Hanus actually gives to manual training an important place in his educational scheme.

No fault can be found with the author's statements as to the aims of elementary or primary education and that of secondary education. The former should induce, through good instruction and wise discipline, the exercise of all the child's powers, mental, moral, æsthetic, manual or constructive, and should promote his normal physical development. The aim of secondary education is to carry forward the work already begun, with due regard to *society* as well as to the individual, and therefore it "should especially promote the development of each pupil's dominant interests and powers"; and further, "it should seek to render these interests and powers subservient to life's serious purposes, and also to the possibility of participation in the refined pleasures of life." The function of secondary education thus comprises three classes of aims, vocational, social, and culture aims, and the author has no difficulty in justifying this conception, which he believes will make of the secondary school "a guiding, inspiring, undying force in American life."

It is not necessary to follow Professor Hanus in his further development of this ideal, the realisation of which he says, truly, requires ardent devotion on the part of the teachers and the intelligent and interested co-operation of the community. That those concerned in the subject of education may gain a proper insight into the conditions of the problem, they cannot do better than read carefully the present work, which does credit to the publishers as well as to the author.

C. S. W.

AN ESSAY ON PERSONALITY AS A PHILOSOPHICAL PRINCIPLE. By the Rev. *Wilfrid Richmond, M. A.* London: Edward Arnold, 37 Bedford Street. 1900. Pages, xix, 219. Price, 10s. 6d.

This is the first work, so far as we know, devoted to a consideration of personality as a philosophical principle. Much has been written incidentally as to the relation between "personality" and "individuality," but the distinction to be made in the use of these terms is by no means clear, and, indeed, they are still employed by many writers as synonyms. Mr. Richmond remarks that in modern philosophical literature, personality is assumed to be "essentially individual, essentially limited," and it is evident that he regards the individuality as limited. Thus he speaks of philosophy as tending to individualism, the philosophy of the individual life. This is quite consistent with his view as to the nature of personality, which he defines as "the capacity for society, fellowship, communion," and as personality stands for fellowship, individuality stands for isolation. Possibly it would be nearer to the truth to say that individuality stands for unity and personality for diversity, but the subject is too wide for discussion here, and it will be more to the purpose to consider Mr. Richmond's theory. This is based on experi-

ence, as the ultimate first principle and the final test of philosophy. Experience may mean the events of the individual consciousness, or it may be regarded as simply thought, but to the author the reality in experience is "personality."

How does Mr. Richmond arrive at this conclusion? In considering the meaning of the word "personality," he remarks that the earliest meaning of "persona," the actor's "mask," has long ceased to be current, and that even its secondary application to the actor himself survives only in the heading of the list of the "characters" in a play. He adds, however, that it is suggestive to find that "so far as 'person' is a name for him, the individual man is viewed first under his social aspect, as playing a part in the commerce or dialogue of life, as an element in the general human scene, as fulfilling a certain function in the evolution of the drama of destiny." The first aspect under which personality presents itself is the bodily aspect—the face in which we read the soul—and therefore "to view the visible personality as a mask is to indicate an unseen reality of which it is the manifestation." There is, in fact, "an archetypal being within, which produces this impression upon other men." Self-manifestation to others is the idea implied, and hence there is no suggestion that the manifestation is a deception and life a masquerade. Continuing his discussion, the author states that the word "person" took its place in common language with a meaning connected with its legal use. Here "the person is primarily the subject of rights. And right is defined as a relation of persons, a faculty or privilege of one person with a correlative duty of another person." The development of personality is connected, therefore, with that of rights, and we are told that "the individual emerged into personality out of the family, where at the beginning of the individual life his rights and his personality were absorbed in the father of the family. And he emerged into personality by emerging into citizenship, into the life and society of the state. The state, the society, gave him his privileges as a citizen, and in giving them, also conferred upon him, at any rate in fact, the liberty which, in idea, in later Roman times was his original and natural right." The person is conceived only as a social being; the actual personal life is the social life.

After referring to the influence of the conception of personal responsibility and the use of the term "persona" as representative of the Greek word "hypostasis" in connexion with the theological doctrine of the Trinity, "in which personality attaches to God not as one Person, but as Three"—God being One, individual, in the sense that He is whole, complete in Himself—the author considers the modern use of the terms "person" and "personal." He shows that, although such phrases as "personal sympathy," "personal affection," and "personal religion" emphasise the sense of *individual* life, yet this always has relation to other persons or to society. Thus, personal liberty and personal property are assertions of the claim of one person against others. The author ingeniously remarks that "the most personal feelings, e. g., those of melancholy and depression, are the sheer

protest of the individual soul against his isolation from that communion with his spiritual kind in which a personal being lives the truly personal life."

In his third chapter the author proceeds to justify his definition of personality as "the capacity for society, fellowship, communion." He points out that, in the region of action, individual desire is, in its issue, social, and that law is "a collective fact, an evidence of the fellowship of persons, of which it is the creation." Law is represented in the individual by conscience, which is "the organ in the individual personality of the impulse towards collective life in the region of action," leading to the aspiration after the perfect moral fellowship witnessed by religion. Applying the same ideas to the region of the intellect, the author argues that individual perception, as perception of fact, is, in reality, "a perception of the individual as the organ of the collective experience," pointing out that the individual mind begins to exercise intelligence in an intelligent, a thinking, society. He affirms truly that language is the creation of the collective intelligence, while the claim to authority of the individual judgment is based on the recognition of the authority of the collective mind. In the region of emotion, which is co-extensive with the social life of man, individual life consists in membership of the collective life, "of the various forms of social union into which the individual has been absorbed." This is particularly observable in religion, as exhibited by Christianity, which is the embodiment of the supreme emotion and has created a new form of fellowship and through it given intensity to all earlier forms.

We have dwelt so fully on his fundamental thesis that we have not space in which to follow the author in his application of the idea of personality, as capacity for fellowship, to the various forms of personal life. This comprises the second and largest part of his work, which treats fully of Feeling, Will and Intellect under their various aspects, and of Emotion, as pleasure, beauty, and love, and those who take an interest in these subjects will be amply repaid for its perusal.

C. S. WAKE.

THE PEACE CONFERENCE AT THE HAGUE, and Its Bearings on International Law and Policy. By *Frederick W. Holls, D. C. L.*, A Member of the Conference from the United States of America. New York: The Macmillan Co., London: Macmillan & Co., Ltd. 1900. Pages, xxiv, 572. Price, \$3.00.

The Peace Conference here chronicled was an event of such great moment, and the literature devoted to its actual work is necessarily so slight, that Dr. Holls's account of it and its bearings will be heartily welcomed. His book is not an official statement of the proceedings of the Conference, yet owing to the position occupied by the author it bears the stamp of authority, which is confirmed by its permitted dedication to the Emperor of Russia, at whose suggestion the Conference was convened. The official records of the proceedings have not yet been published in English, but as Dr. Holls has had access to the reports of the American Commission and to the files of the State Department, and as he was able to make use of

the reports made to the Conference by its various Committees, he had ample material from which to draw for the present work, which is written primarily for American and English readers, but refers sufficiently to the action of the other Powers.

It was thought at first that the object of the Conference would be the formulation of a scheme for Disarmament, but this notion proved to be mistaken, peace as a preventive and the regulation of the means of war being its great aim; although much good work was done in the way of humanising warfare and limiting armaments and also in relation to the laws and customs of war and the adaptation to maritime warfare of the principles of the Geneva Convention respecting hospital service. About two hundred pages of Dr. Holls's work are taken up with an account of the work of the Third Committee, which had charge of the proceedings for the institution of means for the maintenance of general peace, that is for the peaceable adjustment of international differences. The treaty drawn up and ratified by the Powers provides three methods by which this adjustment may be brought about, namely, Good Offices and Mediation, International Commissions of Inquiry, and International Arbitration. As to the methods by Mediation and Inquiry, there is nothing in them obligatory on the nations in dispute, and their chief value would probably be in facilitating the settlement of differences by giving time for the dissipation of angry feeling between the peoples concerned. Nor is there anything in the Treaty of Peace which renders it obligatory for nations to have recourse to arbitration for the settlement of their differences. What was effected by the Peace Conference was the establishment of a Permanent Court of Arbitration, through the agency of which international disputes can be settled, if the Powers directly connected are willing to refer them to arbitration; although the signature of the agreement to arbitrate implies an undertaking to submit to the award.

It may be thought by some persons that, as the Peace Treaty does not provide for the compulsory settlement of disputes between nations, it will fail of practical effect. Such is not the opinion of Dr. Holls, who avows his conviction that "the Peace Conference accomplished a great and glorious result, not only in the humanising of warfare and the codification of the laws of war, but, above all, in the promulgation of the Magna Charta of International Law, the binding together of the civilised powers in a federation for justice, and the establishment of a permanent International Court of Arbitration." To the objection that, as all the proposed substitutes for war are left entirely to the voluntary choice of the nations concerned, no real advance towards lasting peace has been made, the author replies that the Conference purposely trusted to the growth of public opinion and the public conscience for ensuring the carrying out of the aims of The Hague Treaty. He quotes the remark made by Baron d'Estournelles, one of the French Commissioners, as bearing on that point: "War has now been solemnly characterised as a conflagration, and every responsible statesman has been appointed a fireman, with the first duty of putting it out or preventing its spread." The author is quite justified, therefore, in regarding the Peace Conference as representing a step in the upward

progress of the world. As the adoption of Magna Charta led to the development of English Constitutional law and the replacing of the "rude clerics" of the earlier period, who assisted the "ruder litigants," by the "glorious company of English jurists"; so now there will be a development of International Law, and for the old idea of diplomacy will be substituted something far nobler. Instead of "lying for one's country," the aim of diplomacy will become, as Matthew Arnold would say, to make "reason and the will of God prevail." This is the view held by Dr. Holls who affirms truly that "the highest manifestation of the art of politics is *tact*, which is the flower of all human culture, physical, intellectual, and moral, and to be an ideal diplomat is rightly the ambition of many of the world's true aristocrats."

It is a satisfaction to note the important work performed at the Peace Conference by the representatives of the United States. The first draft of Article 8 of the Arbitration Treaty providing for Special Mediation was introduced by Dr. Holls himself, his idea, which he does not claim to be original, being to apply the provisions of the recognised code of duelling to international relations. From the beginning the American representatives declared that their chief object at the Conference was the establishment of a permanent Court of Arbitration, and, although the honor of taking the lead in the steps introductory to that great end was reserved for Lord Pauncefote, the chief delegate of Great Britain, their efforts conduced largely to the attainment of the result. One of the most important parts of the Treaty, so far as the United States is concerned, is the indirect recognition by the European Powers of the Monroe Doctrine, which was acquired through the addition to Article 27, dealing with the duty of the signatory Powers to remind disputants of the existence of the Court of Arbitration, of a declaration reserving to the United States "its traditional attitude towards purely American questions." The Conference furnished a fitting opportunity for obtaining that recognition, which was unanimously given by the representatives of all the Powers without hesitation. The American representatives were not able to induce the Conference to consider their proposition giving immunity to private property on the high seas during war, it not being germane to the subject under discussion, but they had the satisfaction of securing from the Third Committee a resolution, which was adopted unanimously by the Conference, in favor of the proposition being included in the programme of a future Conference.

In addition to the several topics referred to above, Dr. Holls gives an interesting account of the proceedings of the Conference from day to day, concluding with a discussion of the bearings of the Conference upon international law and policy. The Appendices, which comprise a large portion of the book, contains the full text of the final Act, Treaties, and Declarations adopted by the Conference, a copy of the General Report of the United States Commission, with copies of the Reports of the American members of the various Committees, and finally an account of the proceedings of the Hugo Grotius celebration at Delft, held July 4, 1899, the one

hundred and twenty-third anniversary of American Independence. This forms a fitting conclusion to a work which requires no commendation from us. It may safely be left to the public on its own merits.

C. STANILAND WAKE.

PHYSIKALISCH-CHEMISCHE PROPÆDEUTIK. Unter besonderer Berücksichtigung der medicinischen Wissenschaften und mit historischen und biographischen Angaben. By Professor Dr. Med. and Phil. H. Griesbach. Zweite Hälfte, 3. Lieferung: Band I., Bogen 60-62 mit Figur 202-210, sowie Titel, Vorwort und Inhalt; Band II., Bogen 1-22 mit Figur 211-302. Leipsic: Verlag von Wilhelm Engelmann. 1900. Price, 10 marks.

The propædeutics of physics and chemistry for students of medicine and pharmacy on which Dr. Griesbach has been engaged for a number of years forms the most practical general survey of the broad field of physical science to be had. It is difficult to give in the brief space at our disposal an adequate idea of the ground covered by this work, the first two installments of which were reviewed in *The Monist* for January, 1897. The contents of Volume I., which is but just completed by the first pages of the present installment, alone cover some forty pages. We shall merely run over its main headings, which indicate that the subjects treated and sketched in the first volume are as follows: the logical methods and aims of the physical sciences, causality, graphic modes of representation, the principles of the measurement of space and time, matter, energy and force, mechanics, the constitution of matter and the ether, the history of the atomic theory, organic and inorganic matter, cellular physiology and bacteriology (200 pages), the porosity of matter, capillarity, atmospheric mechanics, the physics and chemistry of gases, liquids, etc., the aggregate states of matter, including the theory of elasticity, density, etc., crystallography, etc., the theory of energy, the theory of heat in its relation to physiology, etc. The total number of pages in Volume I., as completed in the first pages of the installment constituting the present volume, is 992.

The remainder of the present installment is taken up with a study of the methods of measuring temperatures, with gravitation as the most widely diffused form of mechanical energy, with the notion of potential in its bearing on gravitation, with weight and mass, specific gravity and density, the determinations of mass and specific gravity, and finally with sound as a special form of mechanical energy. In all these cases the bearing of the different subjects on physiology and hygiene is prominently emphasised.

His book appearing at the dawn of the new century, Dr. Griesbach has taken the opportunity to preface its latest installment with some general considerations on the educational outlook of science. Two facts are strikingly apparent here: one is the necessity of a more general scientific culture for the individual, and the other is the high import which is to be attributed to historical studies in science. With the exaggerated specialism of the period which has just closed, the difficulty of acquiring a logical and all-around survey of the entire scientific field has been greatly

augmented. But soundness and accuracy of judgment and practical tact are impossible without some knowledge of the relationships which our own department of inquiry bears to others, and it is this general knowledge as based upon historical and biographical studies that Dr. Griesbach has endeavored to supply. By indicating at all points the intimate connexion obtaining between the various physical sciences, and by emphasising the continuity and solidarity of their development he has striven to furnish a secure and broad foundation for subsequent special studies. While the work is designed more expressly for chemists, physicians, and pharmacists, and consequently deals more particularly with the relations of physics and chemistry to bacteriology and medicine, it possesses nevertheless an entirely independent value as a well correlated introduction to science at large. The publishers have done much to provide for a practical form of typographical presentation, and the numerous illustrations of instruments, etc., have been gathered at a considerable expense from leading text-books, works of original inquiry, periodical literature, etc. The bibliographies which the author has added to each subject have been made with knowledge and skill, and render the work also an invaluable one for purposes of reference.

STUDIES: SCIENTIFIC AND SOCIAL. *By Alfred Russel Wallace, LL. D., D. C. L., F. R. S., etc.* In two volumes. With numerous illustrations. London: Macmillan and Co., Limited. New York: The Macmillan Company. 1900. Pages, Vol. I., xv, 532; Vol. II., viii, 535. Price, \$5.00.

Mr. A. R. Wallace has done well to collect in book form the various more important articles he has contributed to reviews and other periodicals, seeing that they were intended to be, as he calls them, "studies" dealing with problems of great moment, not merely scientific, but educational, political, and social, in which he is greatly interested. The book is not, however, a mere reprint. In order to make the subjects treated of as interesting as possible to the general reader, the author has introduced copious illustrations, and in many cases has considerably modified and enlarged the original article, the whole receiving careful revision. The subjects are arranged in classes, which fall into the two categories of Scientific and Social, to the former of which volume one of the work is devoted, the second volume being confined to social questions. Some reference will have to be paid to these, but the subjects discussed in the first volume will necessarily engage our chief attention. They are classed under the heads of "Earth Studies," "Descriptive Zoology," "Plant Distribution," "Animal Distribution," "Theory of Evolution," "Anthropology," and "Special Problems." We have here scope for a wide range of discussion, but all the questions considered are closely related as phases of the all-important subject of evolution, taking this term in its widest sense as applicable to the earth and its inhabitants.

The theory of evolution, with which Mr. Wallace is specially associated, is dealt with in four chapters, reference to which we will make in their order. The first,

which is chapter fourteen of volume one of the general work, deals with "The origin of Species and Genera," and it begins by referring to the fact, usually ignored, that Mr. Darwin, of whose theory of natural selection the author is the most strenuous supporter, in the latest edition of his great work on the origin of species, spoke of life as being derived from a divine source. His exact words, as given by Mr. Wallace, who deserves great credit for allowing so fully the claim of Mr. Darwin to the discovery of that theory although it was simply a matter of prior publication, are as follows: "There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, while this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning, endless forms most beautiful and most wonderful have been and are being evolved." It should be pointed out, however, that, as Mr. Wallace mentions, Darwin in a letter to Sir Joseph Hooker, written in 1863, states that in using the term "Creator" he meant "appeared by some wholly unknown process." He added: "It is mere rubbish thinking at present of the origin of life; one might as well think of the origin of matter." Such being the case, it is evident that the reference to the breathing of life by the Creator is merely a "poetical expression" and not intended to convey any idea of the method by which living forms originated.

Those who have not carefully studied Mr. Darwin's views are disposed to think that he regards natural selection as the only agency at work to give rise to new species and genera. As the author points out, this is a great mistake, as Mr. Darwin distinctly recognised the operation of "causes of which we are almost wholly ignorant, as we are of the nature of life itself." One of these causes, that of *variability*, is particularly discussed by Mr. Wallace, who replies to those who object to natural selection as producing new species owing to the enormous chances against the right kind of variation occurring just when required, that variation is "one of the most constant and universal facts of nature, always producing what may be termed the raw materials of species in overflowing abundance, so that, whenever and wherever alteration of the conditions of existence is going on, there is always ready to hand an ample stock of varying organisms, by means of which an almost exact adjustment to those conditions may be kept up." The author is careful, however, not to claim too much for variation and natural selection, by remarking that while individual variation with natural selection is adequate for the production of the separate species of one genus, of one family, or perhaps of one order from a common ancestor, "we have no proof and hardly any good evidence that it is adequate to initiate those important divergences of type which characterise" the separate orders, classes, and subkingdoms. And yet he affirms that the whole body of evidence clearly indicates that all alike have been produced by "descent with modification" from a few primitive types.

In his chapter on "The Method of Organic Evolution," Mr. Wallace points out that the modern doctrine of organic evolution dates from the time of Buffon,

who maintained that Nature is in a "state of continual flux and movement," and that she can do all "except create matter or destroy it." These views as modified by Lamarck and other writers obtained considerable weight with the best thinkers, but not before Darwin had any one been able to show how "the wonderful and complex adaptations of living things to their environment could have been produced by means of known laws and through causes proved to exist and to be of sufficient potency." The four great facts on which his theory is based are variation, rapid multiplication, and the resulting struggle for existence, and survival of the fittest. By reference to these facts organic evolution is more easily explained than by the Lamarckian idea of the direct action of the environment on the organism. After the discussion of this question, the author proceeds to consider the theories of the Discontinuity of Species and of Organic Stability, originated by Mr. Bateson and Mr. Galton respectively, as substitutes for natural selection, partial or complete. These efforts to establish new methods of organic evolution he declares to have "completely failed to establish themselves as having any relation to the actual facts of nature," owing to the fact that attention has been devoted to one set of facts to the exclusion of others both more general and more important.

In a chapter devoted to the consideration of the "Problem of Utility" Mr. Wallace discusses the views expressed by Mr. Romanes in his work *Darwin and After Darwin*. In the preface to this work Mr. Romanes states that his arguments had "broken to fragments" the doctrine of utility, and had "made a full end thereof." In lieu of utility, he finds five causes of modification—climate, food, sexual selection, isolation, and laws of growth. Mr. Wallace in criticism of this view enforces the fundamental argument that "whereas every modification of a species which arises under the influence of natural selection must, from the very nature of its origin, be useful to the new form, no other agency has been shown to exist capable of producing utilitarian characters *in every individual constituting a species, neither more nor less.*" As to the particular causes spoken of by Mr. Romanes, he affirms that although climate and food produce modification in the individual it has not been proved that such modifications are hereditary. Sexual selection, the author declares, is only a form of natural selection, and sexual characters are therefore useful characters. Isolation he does not regard as a true cause; it is at most only an aid to the differentiation of new species by natural selection. Finally, the laws of growth cannot account for *specific* characters and the peculiarities with which they are concerned in higher groups must at first have had a utilitarian character. One of the questions here referred to is discussed in a separate chapter entitled "Are Individually Acquired Characters Inherited?" On the affirmative side of this question are ranged Mr. Darwin and Mr. Spencer, the other side being Mr. Francis Galton and Professor Weismann. Mr. Wallace considers in detail the most important arguments used in support of the proposition that individually acquired characters are inherited and he comes to the conclusion that the balance of evidence yet adduced is altogether the other way. Mr. Spencer's main

arguments to prove the inadequacy of natural selection to account for certain modifications are, according to the author, inconclusive, "since they are either founded on comparatively unimportant and adventitious peculiarities, or on a neglect of some of the most important conditions under which natural selection in its various forms comes into play."

We can only name some of the remaining subjects discussed in the first volume of Mr. Wallace's important work. "The Group of Earth Studies" includes "The Permanence of Oceanic Basins," "Our Molten Globe," and "The Ice Age and Its Work." In the other groups we have valuable chapters on "Monkeys," "The Disguises of Insects," "The Distribution of Plants," particularly in North America, and the "Evolution and the Distribution of Animals." Under the head of Anthropology Mr. Wallace reproduces his Studies on the Polynesians, on the natives of New Guinea, and on the "Affinities and Origin of the Australian and Polynesian Races." All these chapters are well-illustrated. The space at our command will not allow us to enter into details on the subjects discussed by Mr. Wallace in his second volume. They are divided into Educational, Political, Ethical, Sociological, and the Land Problem. Most of the questions considered are treated of from the author's well-known socialist standpoint. In a chapter on "Speech," which deserves careful consideration, Mr. Wallace associates the origin of spoken language with that of gesture language of which it is said to be a kind of imitation. The only place where he allows his spiritualistic views to reveal themselves is when discussing the question "Why live a Moral Life?" This he considers the Rationalist and the Agnostic has no adequate motive for doing, "except so far as he is influenced by public opinion and by a belief that, generally, it pays best to do so." The only adequate motive for a moral life he finds in the teachings of Spiritualism. This lame conclusion and his general argument on this topic seem to us to betray a sad deficiency of power to realise the real nature and conditions of the subject, which is surprising considering the power of reasoning and appreciation of difficult problems displayed in other portions of Mr. Wallace's work which will deservedly have a large number of readers.

C. S. WAKE.

LEÇONS DE CHIMIE PHYSIQUE PROFESSÉES À L'UNIVERSITÉ DE BERLIN. By *J. H.*

Van't Hoff, Membre de l'Académie des Sciences de Berlin, Professeur ordinaire à l'Université et directeur de l'Institut de Physique de Charlottenbourg. Ouvrage traduit de l'allemand par *M. Corvisy*. Troisième partie: Relations entre les propriétés et la composition. Avec un portrait gravé de l'auteur. Paris: Librairie Scientifique A. Hermann. 1900. Pages, ii, 170. Price, 7 francs.

This work on the relations existing between the properties and the constitution of matter is a reproduction of the lectures which Professor Van't Hoff delivered at the University of Berlin in 1898 and 1899. It forms the third and last part of a treatise on physical chemistry, the first two parts of which, treating of chemical

dynamics and chemical statics, have already appeared in German, French, and English and have been noticed in *The Monist*. Professor Van't Hoff has followed in his lectures the general method laid down by Lothar Meyer in the last editions of his *Modern Theories of Chemistry*, where the subject is divided into the two grand general divisions of *Statics* and *Dynamics*. Statics treats of bodies considered apart and by themselves, of the constitution of matter, of atoms, molecules, of the structure and of the configuration of molecules. Dynamics is devoted to the actions of bodies upon one another, to chemical transformations, affinity, chemical equilibrium, etc. The third division of the subject, which treats of the relations between the properties of bodies and their composition, has been added by Professor Van't Hoff, who has departed from the classical programme merely in making dynamics precede statics. The reason for this has been that in recent years dynamics has acquired a much vaster and securer foundation by the association of the theory of chemical equilibrium with thermodynamics, and now takes its place as the natural and logical support of the theoretical edifice of chemistry. Logically it would seem that the problem of statics is a much simpler one, being concerned with single bodies in equilibrium, while dynamics is concerned with a complicated aggregate of bodies in reaction; but this consideration loses its apparent validity when it is reflected that single bodies correspond to a final state of equilibrium following upon reaction. The logical advantage of the order which Professor Van't Hoff has chosen is that at the outset there is no need whatever for any hypothesis concerning the nature of matter; the conception of the molecule is alone sufficient. The atomic hypothesis is in this way relegated to the second part of his work, where the complex problems relating to structure first occur.

The volume is divided into two parts treating (1) of the relation between physical properties and composition, and (2) of the relation between chemical properties and composition. An excellent portrait of Professor Van't Hoff forms the frontispiece.

ELEMENTE DER STEREOMETRIE. By Prof. Dr. Gustav Holzmüller. Zweiter Teil.

Die Berechnung einfach gestalteter Körper. Mit 156 Figuren und zahlreichen Uebungsbeispielen. Leipzig: G. J. Göschensche Verlagshandlung. 1900. Pages, xv, 477. Price, bound, 10.80 marks.

The second volume of Professor Holzmüller's extensive treatise on Solid Geometry fulfills completely the expectations which were entertained of it. The work is the most exhaustive elementary text-book that we have, being elementary in the sense that the higher analysis and the analytical geometry of space are excluded in the treatment, although on the other hand the methods of descriptive and modern synthetic geometry have been widely employed, and the researches of Steiner, Möbius, Gauss, Monge, Chasles, and Poncelet exploited to the full. Besides the Euclidean procedure, the principles of reciprocity or duality, the methods of parallel and central projection, affinity and collineation, inversion, reciprocal polars,

and even barycentric methods, have been introduced. The development is carried far beyond the usual limits, for not only are the simple polyhedra treated but also more difficult forms receive consideration, such as prismaticoids with plane and hyperboloidal lateral surfaces, the Archimedean polyhedra and their reciprocals, the Kepler-Poinsot solids, etc. Conical surfaces, Dupin's cyclides, surfaces of revolution, screw and developable surfaces, surfaces of constant positive and negative curvature, gauche curves, etc., are also dealt with. The materials for exercises have been enriched by drawing freely upon the resources of applied mathematics, mechanics, mechanical engineering, crystallography, physics, mathematical geography, cartography, geodesy, astronomy, and navigation. Entire chapters, in fact, are devoted to these applications in the present volume, while Volume III., which is announced for the autumn of 1901, is to contain numerous examples from the theory of potential and from the doctrines of energy and moments of inertia. The historical references also are rich; so that upon the whole, the work may be said to be unequalled as regards either variety or solidity.

BERKELEY'S DREI DIALOGE ZWISCHEN HYLAS UND PHILONOUS. Ins Deutsche übersetzt und mit einer Einleitung versehen von Dr. Raoul Richter, Privatdozent an der Universität zu Leipzig. Leipzig: Verlag der Dürr'schen Buchhandlung. 1901. Pages, xxvii, 131. Price, 2 marks.

BERKELEY'S ABHANDLUNG ÜBER DIE PRINZIPIEN DER MENSCHLICHEN ERKENNTNIS. Ins Deutsche übersetzt und mit erläuternden und prüfenden Anmerkungen versehen von Dr. Friedrich Ueberweg, weil. ord. Professor der Philosophie an der Universität zu Königsberg. Dritte Auflage. Leipzig: Verlag der Dürr'schen Buchhandlung. 1900. Pages, xiv, 149. Price, 2 marks.

JOHN LOCKE'S VERSUCH ÜBER DEN MENSCHLICHEN VERSTAND. In vier Büchern. Zweiter Band. Uebersetzt und erläutert von J. H. v. Kirchmann. Zweite Auflage, bearbeitet von Pf. em. C. Th. Siegert. Leipzig: Verlag der Dürr'schen Buchhandlung. 1901. Pages, 381. Price, 3 marks.

PLATO'S STAAT. Uebersetzt von Friedrich Schleiermacher, erläutert von J. H. v. Kirchmann, Zweite Auflage, bearbeitet von Pf. em. C. Th. Siegert. Leipzig: Verlag der Dürr'schen Buchhandlung. 1901. Pages, vii, 493. Price, 3 marks.

The well-known *Philosophische Bibliothek* of J. H. von Kirchmann, which is one of the most comprehensive cheap collections of philosophical writings that we have in any language, is now published by the Dürr'sche Buchhandlung of Leipzig. The size and appearance of the newer volumes has been changed; the type is larger, and the printed pages more free and readable in every respect; the reprints of the older volumes are still published in the old form. The latest issue of the collection is a German translation of Berkeley's three dialogues between Hylas and Philonous, by Dr. Raoul Richter, privatdocent in the University of Leipzig. The

number of this latest issue, 102, will give some idea of the scope of the collection, which includes German translations of the works of Aristotle, Bacon, Berkeley, Bruno, Cicero, Condillac, Descartes, Grotius, Hume, Leibnitz, Locke, De la Mettrie, Duns Scotus, Sextus Empiricus, and Spinoza, as well as editions of the German philosophers Kant, Fichte, Hegel, Schleiermacher, etc.

We have also just recently received from the publishers new reprints of the translations of the second volume of Locke's *Essay on Human Understanding* (price, 3 marks), the second edition of Schleiermacher's translation of Plato's *State* (price, 3 marks), and the third edition of the German translation of Berkeley's *Principles of Human Knowledge* (price, 2 marks). The prices of the collection are not high, varying from 15 cents for an average of eighty pages to 75 cents for books of from 400 to 500 pages.

AN ENQUIRY CONCERNING HUMAN UNDERSTANDING. By *David Hume*. Reprinted from the edition of 1777, with Hume's autobiography and a letter from Adam Smith. Chicago: The Open Court Publishing Co. London: Kegan Paul, Trench, Trübner & Co. 1900. Pages, xvi, 180. Price, paper, 25 cents (1s. 6d.).

The present little volume is one of a number of philosophical and scientific classics which it is the intention of the publishers to incorporate in their Religion of Science Library. Descartes's *Discourse on Method* was the first to appear, and Kant's *Prolegomena* will in all likelihood also be published. The intention is to furnish cheap and substantial editions of the concisest and most representative works of the great philosophers.

Hume's *Enquiries Concerning Human Understanding* and *Concerning the Principles of Morals* were formally proclaimed by him to be the sole productions by which his philosophical sentiments and principles should be judged; and while some historians are inclined to the belief that his *Treatise of Human Nature*, which the *Enquiries* were written to replace, furnishes his soundest claim to a place among the great thinkers of Europe, it is nevertheless true that the *Enquiries* are far more concise, elegant, and lucid than the older *Treatise*, and that for general purposes they afford a much easier and more pleasant introduction to his thought.

The value of the present volume, which is simply a reprint from the posthumous edition of 1777, has been enhanced by the addition of Hume's well-known autobiography and the letter from Adam Smith usually prefixed to Hume's *History of England*. A reproduction of the portrait of Hume, by Ramsay, forms the frontispiece to the volume.

LA TEORIA DEI BISOGNI. By *Camillo Trivero*. Turin: Bocca Bros. 1900. Pages, 198.

This work is number twenty-three of the Little Library of Modern Science (*Piccola Biblioteca di Scienze Moderne*) of which the Brothers Bocca are the edi-

tors. Other numbers of this Library have been noticed in these columns. We have in the present volume a thorough discussion of the theory of wants—thorough as far as it goes, for, as the author says, an exhaustive treatment would include all human history. Among the topics discussed are: the general concept of want, its extension and value, the division of wants and the corresponding division of the sciences and arts, what should be understood by a classification of wants, consciousness, its degrees and forms, and the functions of the theory set forth. The writer opposes the materialistic conception of history and the whole book may be briefly described as a rejoinder to those who have ascribed primary importance and dominance to economic wants. Its message to the disinherited is "O people, you are *human*, but in the widest meaning of the word. Educate yourselves! Elevate yourselves! Economic progress is intimately connected with so many other things. Honesty is the foundation of it. But honesty does not depend upon the individual will alone; it depends upon tradition, usage, public morality, laws, etc. But these will not better themselves without *knowledge*. Then again I say, educate yourselves, and your advance will be complex and general."

I. W. H.

DELL' UNITÀ DELLE SCIENZE PRATICHE. By *Gaetano Jandelli*. Milan: Capriolo and Massimino. 1899. Pages, 439.

The book represents an effort to trace out the principle lying at the base of and presupposed by all the practical sciences. It is impossible in a brief notice adequately to describe, or even to mention, the salient features of this work which even a cursory examination shows to be full of pregnant thoughts. It is a scholarly and profound work on Practical Philosophy as defined by John Stuart Mill in his *System of Logic*. The range of such a book is implied by its title. Its theological trend may arouse suspicion, but its searching criticism of the various theories of morals will win the admiration if not the approval of the reader. I. W. H.

LA RIDUZIONE PROGRESSIVA DELLA VARIABILITÀ E I SUOI RAPPORTI COLL' ESTINZIONE E COLL' ORIGINE DELLE SPECIE. By *Daniele Rosa*. Turin: Carlo Claussen. 1899. Pages, 133.

Professor Rosa in this volume contributes a brief but interesting and scholarly discussion of some important phylogenetic problems. Beginning with an inquiry into the causes of the extinction of species, he is gradually led to a consideration of the various theories concerning their origin. The book is divided into three chapters with the following titles, respectively: The Extinction of Species and the Progressive Reduction of Variation; Progressive Reduction of Variation and Progressive Reduction of Variability, and, finally, the Progressive Reduction of Variability and the Origin of Species. The basis of the whole discussion is the proposition that species which have disappeared without necessary modification are generally the most perfect. This fact is accounted for in the first chapter by the law of progressive reduction of variation, which corresponds pretty closely to Cope's "law of

the unspecialised," as set forth in his *Primary Factors of Organic Evolution*. The difference is this, that the law of progressively reduced variation "is applied to all forms, even to those which could not be called specialised, as Cope used the word. It expresses a more general phenomenon which began to manifest itself at the very beginning of organic evolution" (p. 36).

Having determined the law just referred to, the author naturally proceeds to inquire into its causes, and this is the task of the second chapter. He finds that it is due to a more general law which he formulates as the law of progressively reduced variability. This second law holds not only with reference to species but also in regard to organisms, organs, and the histological elements. This conclusion is contradictory to that of Haeckel, for instance, who declares that there is no limit to the variation of organic forms. As to the causes of this law, whether they are extrinsic or intrinsic or both, the author is compelled to admit, after a somewhat extended consideration, that they are unknown.

In the third chapter the relation of the law of progressively reduced variability to certain frequently discussed questions in regard to the origin of species is considered, especially its relation to the theory of natural selection. With the latter it does not perfectly accord. The theory of progressively reduced variability, says Professor Rosa, leads us necessarily to orthogenesis. The facts of individual variation are not opposed to these two theories, because two kinds of variations must be admitted, namely, phylogenetic and individual. The author considers also the relation of his theory to preformation, epigenesis, and adaptation.

Among the interesting conclusions which may be drawn from the theories set forth in this work are the following: The cause of the absolute extinction of a group or species is its very perfection, since the increase of perfection is accompanied by reduced variation; the production of new forms and species cannot continue indefinitely, and finally every species evolves toward a condition of fixity. Works cited in the text are affixed to each chapter.

I. W. H.

I FATTI PSICHICI ELEMENTARI. By *Adelchi Baratono*. Bocca Bros.: Turin, 1900. Pages, 107.

This little volume is not a psychological treatise for beginners, as its title might indicate, but a critical analysis of the data of consciousness, and an attempt to discover the fundamental fact which differentiates psychology from the sciences of biology and physiology. This is a task which the writer asserts it was not necessary to enter upon in the initial stage of the science, for the observation and classification of facts of a certain degree of complexity are a necessary preliminary for successful effort in this direction. Psychology has now reached a stage of development, however, when such an investigation may be fruitful in positive results. He therefore enters upon his examination of the so-called states of consciousness with the object of determining whether they are reducible to simpler elements.

After subjecting to vigorous criticism the theories of Spencer, Bain, Sergi, and

Wundt, the author accepts the conclusion that consciousness itself may not be considered as a fact in itself to be separated from knowing, feeling, and willing, but that it is present in them all. Unity of consciousness is therefore a composite which must be broken up into its elements. It does not follow perception, for instance, but accompanies it and constitutes its peculiar psychical character. "Consciousness, in fine, represents the *psichicità* of the facts of the mind" (p. 26).

This being the case, it is obvious that all mental facts, and consequently the elementary psychic facts our author is in search of, are facts of consciousness. To speak of unconscious psychic phenomena is to utter an absurdity (p. 41). Now in consciousness the final data at which we arrive are feeling, knowing, and willing, which according to Spencer and Wundt are but three phases of the same phenomenon. Not so with the present investigator. According to him they are distinct phenomena in our consciousness. Moreover, we find them as consecutive and as dependent upon one another. These, then, are the fundamental psychic phenomena. They are the "elementary psychic facts."

The author devotes some space to a discussion of the relation of the will to knowledge and feeling, and in the last chapter considers psychic development in its relation to the fundamental facts, and the representative process which, with the relations existing among the simplest psychic phenomena, gives the laws of every psychic fact.

I. W. H.

THE LIFE, UNPUBLISHED LETTERS, AND PHILOSOPHICAL REGIMENT OF ANTHONY, EARL OF SHAFTESBURY, AUTHOR OF THE "CHARACTERISTICS." Edited by Benjamin Rand, Ph. D. Harvard University. London: Swan Sonnen-schein & Co., Lim. New York: The Macmillan Co. 1900. Pages, xxxi, 535. Price, \$4.00.

It is refreshing in these days of ephemeral literature to meet with a book of this character which combines interesting reading with subject-matter of great and permanent value. But it is seldom that such material as that which is brought together in this volume is available for publication. In his Prefatory Introduction, Professor Rand informs us that all the material for the work, except the letters addressed to Locke, was obtained from the Shaftesbury Papers deposited in the Record Office in London. It is strange that search was not made earlier for literary productions of the great English moralist, and if it had not been for the suggestion of Mr. Thomas Fowler, who made a partial examination of the Papers for the purposes of his work entitled *Shaftesbury and Hutcheson*, the manuscript of what Professor Rand describes as "one of the most remarkable unpublished contributions of modern times in the domain of philosophic thought," might not have seen the light for a considerable time to come. The *Philosophical Regimen*, which was written between the years 1698 and 1712, nearly two hundred years ago, forms the most important part of this book, and as it is "a revelation both of the inmost purpose and of the outward procedure" of the life of one of England's greatest moral-

ists it will attract much attention. About half of the present work is taken up with letters written by Shaftesbury, many of which are of great interest and throw much light on his character and disposition. It seems strange that such a man should have been alienated from his mother, and yet such was evidently the case, although the fault can hardly have been on his side. In a letter addressed to her after referring to his loss of her affection, through what action of his he did not know, he prays God that He would one day give her "the heart of a mother and restore him to the good-will and blessing of a parent." Happily the breach between them was repaired, as appears from another letter to his mother written nearly a year after the first. Among the most valuable letters now for the first time published is a series written by Shaftesbury to Lord Somers on presentation to him of copies of treatises written by the moralist as they were published. The first letter to Lord Somers was included in *The Characteristics* of Shaftesbury, as a "Letter Concerning Design." Among other persons of note, letters to whom appear in this correspondence, are the philosophers John Locke, Pierre Coste, Jean le Clerc, and Des Maiseaux.

But to return to *The Philosophical Regimen*. The matter of this treatise is better than the style, which although always strong, often good and in some places excellent, is in many other places spoiled by its repeated questionings. This was, however, Shaftesbury's method, an apt illustration of which may be taken from the conclusion of the discourse on the *Natural Self*, which furnishes also a short summary of his philosophy. After speaking of the order of the universe and the general mind which governs it, he continues: "Consider then what am I? what is this self? a part of this general mind, governing a part of this general body, itself and body both, governed by the universal governing mind, which, if it willingly be, it is the same as to govern with it. It is one with it, partakes of it, and is in the highest sense related to it. Τίς ὁν [What am I? Who?] Wonderful word! powerful question! if but rightly applied and used, not only in the first and leading sense, the natural self; but in the economical parts, and in every relation, station, and circumstance of life." The philosophy of Shaftesbury was practically that of Epictetus and Marcus Aurelius, whose doctrines he was said to have understood as well as themselves and their virtues to have practiced better. On this point we cannot do better than quote the words of Professor Rand, who, after stating that Shaftesbury was most thoroughly conversant with the works of those two writers, says: "From them he drank most of the topics and their maxims in the *Regimen*. He reproduces not only their thought but also to a considerable extent their technical language. It would be difficult indeed to find any author with quotations in every instance so apt as those which Shaftesbury makes from those writers. With their philosophy, moreover, he was most thoroughly saturated." The admiration for Shaftesbury expressed by Professor Rand is well deserved and no one is better qualified than himself to judge of the writer of *The Philosophical Regimen*, the permanent strength of which, he declares, "consists in the fact that it is one of the

most consistent and thorough-going attempts ever made to transform a philosophy into a life." He continues: "Just as Spinoza was 'God-intoxicated,' so Shaftesbury was 'intoxicated with the idea of virtue.' He is the greatest Stoic of modern times. Into his own life he wrought the stoical virtue for virtue's sake." He was, indeed, a living illustration of the truth of the affirmation made in his discourse of *Good and Ill*, that "the only true and real good is the enjoyment of a soul and mind freed from the incitements, commotions, and disorders of sense," a passage which explains the paragraph with which that discourse closes—"go to the source origin, and principle of excellence and beauty. See where perfect beauty is, for where that is, there alone can be perfect enjoyment, there alone the highest good."

The *Regimen* is preceded by a sketch of the life of Shaftesbury by his son, the contents of which were printed by Birch in the *General Dictionary* of Bayle, but this is the first time that it has appeared under the name of its real author. From this sketch we learn that although Shaftesbury was accused of disbelief in revealed religion, he was really a constant and devout attendant at the services of the Church of England. The study of his character and opinions as presented in this work will operate as an excellent moral "regimen." The book has for its frontispiece a good engraving giving a full-length figure of Shaftesbury, which we should judge to be an excellent portrait.

C. S. WAKE.

THOMAS CARLYLE. By Paul Hensel. Stuttgart: Fr. Frommanns Verlag (E. Hauff). 1901. Pages, 212. Price, bound, 2.50 marks.

HERMANN LOTZE. By Richard Falckenberg. Erster Teil. Das Leben und die Entstehung der Schriften nach den Briefen. Mit Bildnis. Stuttgart: Fr. Frommanns Verlag (E. Hauff). 1901. Pages, 206. Price, bound, 2.50 marks.

The lives of Fechner, Hobbes, Kierkegaard, Rousseau, Spencer, Nietzsche, Kant, Aristotle, Plato, and Schopenhauer have already appeared in Frommanns *Klassiker der Philosophie*. The last two volumes are a biography of Thomas Carlyle by Dr. Paul Hensel, of Heidelberg, and a biography of Hermann Lotze by Dr. Richard Falckenberg, of Erlangen. Wundt, John Stuart Mill, and Goethe are to follow. It is rather odd to see Carlyle ranked as a classical writer on philosophy, but the series will not suffer by the inclusion of thinkers of all classes. Dr. Hensel has written a very interesting life of Carlyle and has most probably furnished a juster appreciation of his import and career than has yet appeared in English. The book reads entertainingly, and is adorned by a rather truculent-looking portrait of the great English thinker.

The Life of Hermann Lotze, by Professor Falckenberg, is to consist of two parts, the first of which, giving the history of his life and writings, lies before us. Dr. Falckenberg devotes over 100 pages to Lotze's life, which is rather uneventful, the remainder of the volume being taken up with the chronology of his literary productions. The fact that the life of Lotze is to fill two volumes is explained by

the fact that no detailed biography of Lotze is in existence, and the present work is really the first attempt to go more minutely into his history. Lotze's letters to his friends and students, notably to his publisher Hirzel, have been examined by the author, and much new material has been adduced in this way for elucidating the modes of living, working, and thinking employed by the celebrated author of the *Microcosmus*. Lotze held a recognised position as one of the foremost masters of German literary style, an attribute which is quite rare among the German philosophers; in the words of Professor Falckenberg, "his language was music, and no other German save Paul Heyse and Friedrich Nietzsche possessed so delicate a feeling for the rhythmic cadences of German prose." Professor Falckenberg has reproduced verbatim a considerable part of Lotze's correspondence, and his readers will thus be allowed to enjoy the unconstrained and unartificial beauties of Lotze's style at its best. Some of his unpublished poetry has also been added in the appendix, while a good likeness of the philosopher accompanies the volume.

WHENCE AND WHITHER? An Inquiry Into the Nature of the Soul, Its Origin and Its Destiny. By *Paul Carus*. Chicago: The Open Court Publishing Co.; London: Kegan Paul, Trench, Trübner & Co., Ltd. 1900. Pages, vi, 188. Price, cloth, 75 cents net (3s. 6d. net).

"Some psychologists of the modern school have characterised their science as "a psychology without a soul. They mean thereby that the old dualistic conception of the soul as a metaphysical ego-being, with faculties and functions, has "been discarded; that there is no such thing as a soul-entity; and that, accordingly, our psychology must be reconstructed, pretty much after the manner in "which we might reconstruct the play of 'Hamlet' with the rôle of Hamlet "omitted. The author of this little book is fully aware of the gravity of the "charges that have been made against the old-fashioned soul-conception; in fact, "he is himself one of the most energetic supporters of the monistic philosophy, "but he would insist that, while a deeper insight into the nature of things necessitates a revision of our science, the facts of man's soul-life remain the same as before, and the new psychology is not a psychology without a soul, but a psychology with a new interpretation of the soul.

"The soul, it is true, can no longer be regarded as a mystical being, as an entity, or an essence,—a something in itself, possessed of certain qualities and "endowed with faculties: the soul is not that which feels and thinks and acts, but "is the feeling itself, the thinking itself, and the acting itself; and the faculties, "so called, are simply various categories under which the several sets of psychical "functions may be subsumed.

"There is as little need for the psychologist to assume a separate soul-being, "performing the several soul-functions, as there is for the meteorologist to assume "a wind-entity, which, by blowing, produces a commotion in the air. According "to the positive school, the commotion in the air itself is the wind. But though

" we deny the existence of a metaphysical wind-entity, winds blow as vigorously as
" they ever did; and why should the soul of the new psychology be less real than
" the soul of the old psychology? "

" The dualistic conceptions of things-in-themselves, which are supposed to be
" the agents of phenomena, constituting the concrete things, is gone forever; and
" some thinkers to whom this conception of the world has grown dear, feel sad at
" heart and sigh over the loss of their spiritual treasures, for they fancy that the
" highest ideals of mankind have been impaired, and science is doomed to end in
" dreary nihilism. But let us remember, that, if *things-in-themselves* have no
" real existence, the *things themselves* remain. If the metaphysical soul-concep-
" tion must be abandoned, the facts of our soul-life remain.

" The personality of man, so little understood before, is not of less significance
" if we can analyse it and trace the fibres which enter into the wonderful system of
" its make-up; and the unity of the soul is not gone, because man's psychical ac-
" tivity is not a rigid unit, not an atom, not a monad. The soul is a complex or-
" ganism, consisting of many ingredients and different parts with varied functions.
" It is a compound, but, being an organism, it does not lack unity. It is subject
" to change, but for that very reason it is capable of growth, of expansion, of ad-
" vancement, and elevation.

" The main fact of man's psychical activity is the continuity of his soul, for
" this is the ultimate basis for the identity of a man's personality through all the
" changes of his development. The continuity and identity of each soul are condi-
" tions which beget the feeling of responsibility, and thus force upon man the ne-
" cessity of moral conduct.

" The first questions of psychology are the *Whence and Whither* of the human
" soul; and we must understand their significance in order to be able to answer
" the main question of life, 'What shall we do? How shall we act? Which aim
" shall we pursue?'

" The continuity of man's soul-life is not limited to the span of time that lies
" between birth and death; it extends beyond the boundary line of individual ex-
" istence, and links the fate of each single person to the lives of his ancestors and
" contemporaries, as well as to the generations to come.

" It is not impossible to comprehend the nature of man's soul, to trace its
" *Whence* and to point out its *Whither*; and we trust that when a man has gained
" an insight into the relation of his own being to the general life of the race, he
" will think with greater reverence of the past and with more consideration for the
" future. It will make him judicious in whatever he undertakes, and will serve
" him as a mariner's compass on his journey over the stormy ocean of time."

The preceding paragraphs, which are a verbatim reprint of the preface which Dr. Carus has written to this his most recent utterances on the practical psychology of the human soul, will show, more forcibly than any mere description could, the purpose and character of the book. The subject is developed under five headings,

which read as follows: (1) The Nature of the Soul; (2) The Mould; (3) Whence? (4) Whither? and (5) Is Life Worth Living?

PÂLI BUDDHISM. By *H. H. Tilbe*, Professor of Pâli in Rangoon Baptist College. Rangoon: American Baptist Mission Press; Leipzig: Otto Harrassowitz. Pages, vi, 55. Price, 2 M.

The present booklet is a brief exposition of so-called Southern Buddhism. According to the author's view, a religion must be studied from three standpoints, viz.: (1) the environment in which it finds itself, including the life of its originator; (2) the means or system of theories by which the founder formulates the principle of salvation; (3) the *modus operandi* or practical institution through which he endeavors to realize his ends. The author concisely describes in the first chapter the intellectual and spiritual surroundings in which Gotama was brought up, while in the second chapter his personal life as gathered from the Pâli literature is recorded. The third and fourth chapters are devoted to a lucid enunciation of the Dharma, which was calculated by Buddha to be the means of destroying the endless succession of birth and death, and to a short delineation of the Buddhist institution known as Samgha, a sort of ethical association.

The work, according to the author, has been prepared especially to meet the practical needs of those students who desire to pass the Pâli examinations of the Calcutta University, and consequently it aims at furnishing "a brief, reliable, clear, well-arranged, and inexpensive outline of Gotama's real life and teaching." As such the book is a success in an eminent degree, though there will be some Northern Buddhists who may contest the author's assertion that Pâli Buddhism alone presents the "real" life and teaching of Buddha. Christian Missionaries who have but little time to spare may also profit by the reading of the present book.

T. S.

ERRATUM.

Page 8, line 7 from bottom of *The Monist* for October, 1900, for *Peter or Paul* read *John or Peter*.